

*American veterinary medical  
association.* 9164  
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# AMERICAN VETERINARY REVIEW

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**VOLUME XLVI.**

**NEW YORK:**

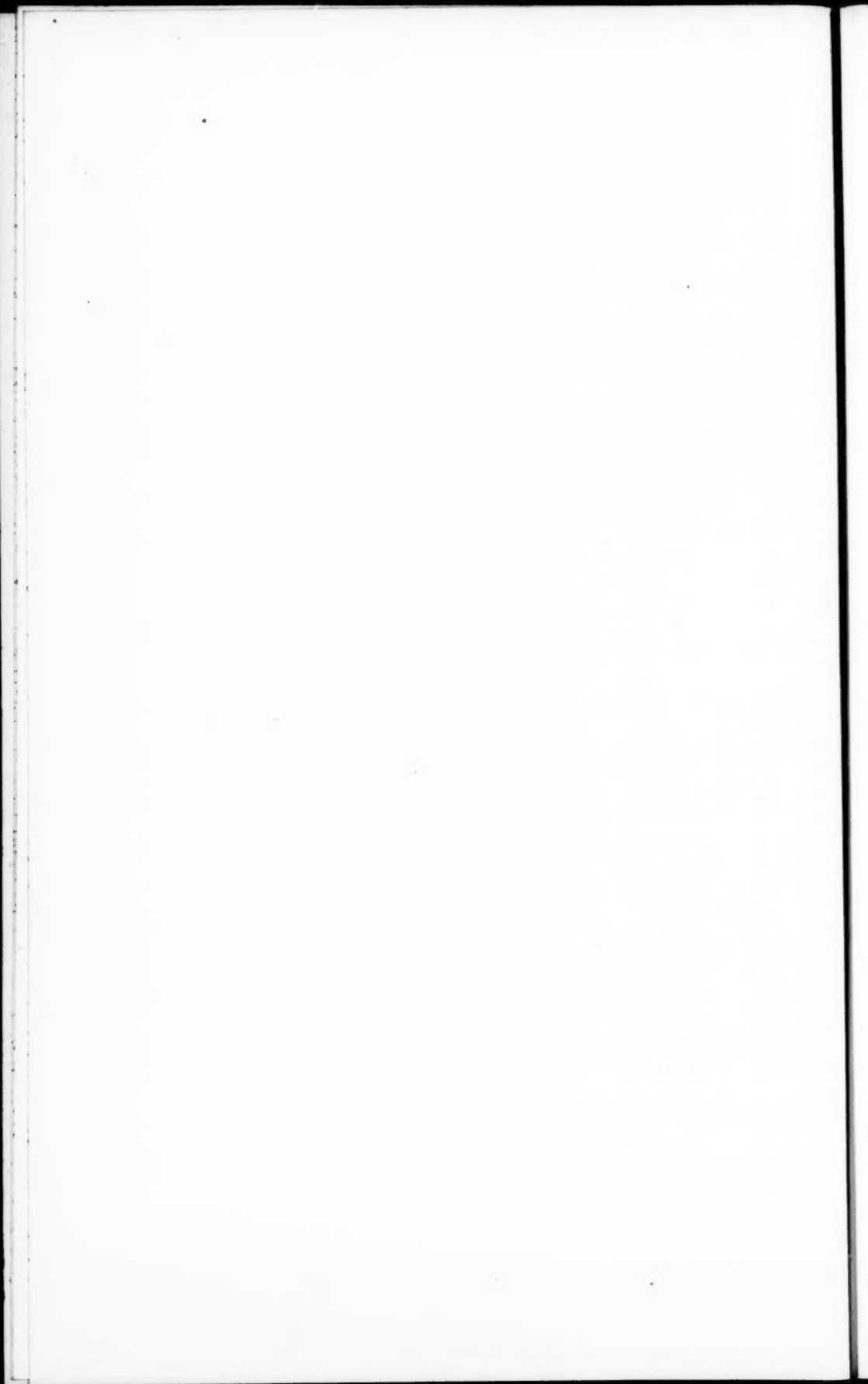
**PUBLISHED BY AMERICAN VETERINARY REVIEW,  
509 WEST 152d STREET.**

SF601

6530

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# AMERICAN VETERINARY REVIEW.

OCTOBER, 1914.

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## EDITORIAL.

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### **Daniel Elmer Salmon**

When Dr. D. E. Salmon (as he was familiarly known) died in Butte, Montana, on August 30, 1914, the American veterinary profession lost one of its most brilliant members, and the REVIEW a valued and highly esteemed collaborator. Dr. Salmon had not yet reached the age when we may expect men to drop out of our ranks, he was only sixty-four years old, and we had every reason to expect to have him with us another ten years at least; but an attack of pneumonia cut short the career of this good and gifted man. Every veterinarian in America, and many in foreign lands, knew Dr. Salmon either personally or by reputation, and an outline of his life and his work appears in another place in this issue, so we will not go into that here. Those of us whose privilege it was to have known him well will always cherish the memory of the man, aside from the greatness of his achievements. Whether one met him in the capacity of Chief of the Bureau of Animal Industry, as President of the American Veterinary Medical Association or in a social way, there was always that genial manner, that aimable countenance, that generous simplicity and modesty of bearing that is typical of all truly great men, and that the highest honors that the profession could bestow upon him did not alter. He was always ready to do his part at public gatherings, and many there are who will recall an extemporaneous address that he made at the last A. V. M. A. banquet from which ladies were

excluded. It was at Atlantic City, N. J., in 1901. The ladies sat on the veranda outside of the dining hall, while the men banqueted, and later listened to the after-dinner speakers. His work in organizing a veterinary school at Montevideo, after leaving the service of the U. S. government, was among his achievements, the extent of which has possibly never been fully appreciated by the great majority. But he has been called away from us to a higher and greater life, and we are left to reflect and to try and realize all that he was to us, and what he meant to our profession while he was here. At the funeral services in Washington, D. C., many officials of the Bureau of Animal Industry were present; among others Dr. John R. Mohler, assistant chief; Drs. R. W. Hickman and A. M. Farrington; also Dr. L. O. Howard, Chief of the Bureau of Entomology, and Drs. C. J. Marshall and W. Horace Hoskins, of the University of Pennsylvania Veterinary School. Dr. Hoskins made an address at the bier.\* The pall bearers were Drs. L. O. Howard, C. J. Marshall, John R. Mohler, A. M. Farrington, C. J. Hunt and Mr. Harry Blake.

#### EUROPEAN CHRONICLES.

AMONG NEW BOOKS.—*Atlas der Anatomie des Pferdes* (Atlas of Anatomy of the Horse), by Dr. Med. Vet. Reinhold Schmaltz, Professor of Anatomy to the Veterinary High School of Berlin.

Several years ago, on two occasions, I have had the pleasure to call the attention of my American confrères to the two first parts of this magnificent work, edited by the House von Richard Schwetz of Berlin.

To-day I have before me the third part of this masterly undertaking. Of the manner in which this is presented I have little to say, as it would be but the repetition of my previous examina-

\* Published on page 95 of this issue.

tions. And yet how could I ignore the neatness, the fine printing and, above all, the beautiful illustrations which form the principal base of the work—I say the principal, for they are so perfectly and, I dare say, so correctly done that no other work can compare with it. Of course there are other excellent and beautifully illustrated works on anatomy, but the atlas of Professor Schmaltz differs from them, as by the plates alone one can almost study the anatomy of a region, of an organ, without the need of a long and sometimes hard and dry description.

Indeed if one glances at one plate, finely drawn and colored, and lays over it the double, made on transparent paper with the name of the minute parts shown by the colored illustration, there is no need for more description. Careful study and reading of the two plates, resting one on the other, are more than sufficient.

By that can be appreciated the value of the atlas for the practitioner and for the student desirous of refreshing their minds at a glance. After all, seeing these is but another reading, almost another dissecting.

This third part of Schmaltz's Atlas begins by a preface where the plan of the book is laid out and is followed by a concise description of the contents, the description of the viscera, viz., the Pectoral, the Abdominal and the Pelvic. This description, as I said, is concise; it takes a little over 11 pages. And now come the plates—each is colored, each has its transparent duplicate with the various names of muscles, blood vessels, organs, etc. Continuation of the previous parts, these plates are numbered from 63 to the end 78—and to make the reading easier they are marked on the top with the word “links—von hinten gesehen—rechts” (left—viewed from behind—right). The twelve first plates are views of the body, cut in sections. The remaining are views of the trunk as a whole.

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Let us glance at the sections and their contents.

The *first section* is made through the neck, passing through

the middle of the second dorsal vertebra and showing the aspect of the entrance of the chest, a space bound above by the vertebrae, laterally by the first ribs which are seen and below by the anterior manubrium sterni. In that space is seen the longus colli, the trachea, oesophagus, the blood vessels and on each side a very small portion of the lungs. All is surrounded by the cervical muscles above, laterally and below with the pectorals.

The *second section* is made by the third dorsal vertebra. It is getting more in the thorax and the lungs appear by their anterior extremity resting upon each other. Then the trachea and the oesophagus are indicated. Of course the surrounding structures are different from those in the first. There is a longitudinal section of the scapula, and the cervical, scapular and pectoral muscles with blood vessels and nerves are indicated.

The *third section* is made back of this, through the sixth dorsal. We are almost in the anterior half of the thoracic cavity, and the lungs are separated inferiorly by the mediastinum and leave room for the heart and its envelopes.

The *fourth section* passing through the eighth dorsal vertebra goes further in the appearance of the lungs and heart. It is the middle of the thoracic cavity.

In the *fifth section*, made by the tenth dorsal, we are at the limit of both splanchnic cavities. In the upper part we find the posterior part of the lungs and in the lower the liver and the stomach. The phrenic portion of the diaphragm separates these parts.

We then reach the *sixth section*, which is passing through the thirteenth dorsal, showing a smaller portion of the lungs above and in the larger part of the plate, below, the stomach and various folds of the intestine.

The *seventh section*, through the fifteenth and sixteenth dorsal, the very posterior border of the lungs, occupies a small portion above and the digestive canals in its various divisions below.

The *eighth section* is by the eighteenth dorsal, the abdominal organs are exposed in full, also the kidneys and the spleen.

The *ninth section*, passing through the second lumbar, and

the *tenth* through the fifth, complete the anatomy of the abdomen.

The *eleventh* section made about the third sacral and the *twelfth* by the middle of the obdurator foramen show the final portion of the intestine, the rectum and the pelvic cavity with its contents.

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Plates 75 and 76 are united and give a splendid view of the profile of the left side of the trunk, with a portion of the lung, the position of the heart, the diaphragm, the liver, stomach, spleen, left kidney, fold of the large colon and small intestine.

Again, plates 77 and 78 are used to give a full view of the profile of the entire right side. It shows the divided portion of the anterior part of the lungs, with the heart, the blood vessels, the diaphragmatic septum, liver, right kidney, large colon, coecum and small colon.

I have taken much room and given much space to the consideration of this part of Schmaltz's Atlas. Long as this notice may seem, I feel that it cannot give the impression that I think it deserves, viz., that it is a most valuable monument to the anatomy of the horse and one that every veterinarian, student and practitioner, ought to always regard as *the* book for superior information.

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PROCEEDINGS OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION, 1913.—An enormous volume of nearly 1,100 pages with several illustrations has been issued by the Publication Committee of the Association, with Dr. J. R. Mohler, chairman.

Is it worth while, I asked myself when I received this handsome evidence of the greatness of the meeting of New York in 1913, is it worth while to review it? Every veterinarian in the United States has a copy, every member, active or correspondent or honorary, has received it; then of what use will it be for me to review it? And besides could I do it justice in the presence

of the enormous material that the volume contains? Perhaps I could not, and yet can the REVIEW let it go, can European Chronicle that has received it ignore it? No, I will try to do it justice in as concise terms as the space allowed me permits.

*Proceedings*, I think for the benefit of those who will read them, can be divided into several chapters.

A first containing the usual material found in the reports of similar events, viz., the various addresses and the answers that followed.

As the A. V. M. A. is a working organization, time with her is precious, and wasting it is not allowed. On that account we enter at once in the hearing of the various reports. First that of the ordinary officers of the Association and second those of the various committees, that on Diseases, on Intelligence and Education, those of the Resident Secretaries, on Legislation, Publication, etc., etc.

The report of the Committee on Revision of Veterinary Anatomical Nomenclature with its "Nomina Anatomica Veterinaria" exhibits the enormous amount of work that the Committee has done. And this report is not complete. Another year will be necessary to make it.

The report of the Committee on Reorganization is also an important one and is as yet before the Executive Committee I think. It has called for supplemental reports which show the great interest that the members of the Association take in this subject. The Constitution and By-Laws of years gone by, even with the amendments that were brought to them, can no longer serve for an organization, so large, so important as the A. V. M. A. is to-day.

And with a few more reports of Committees on specific subjects, I think, we can close the first chapter.

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Now we are entering in the active work of the Association. This second part presents, in detail, the work carried out at the various sittings.



*Section on Veterinary Medicine* forms the second chapter of *Proceedings* and presents papers on general questions of Physiology, of Therapeutics. There are but few papers on practical medicine proper, such as on Parenchymatous Mastitis, Cerebro-Spinal Meningitis of Horses, Forage Poisoning or Equine Encephalometitis, etc. One must not think that this chapter is not interesting, if it is not as complete as one would think it ought to have been.

What I call a third chapter is the *Section on Surgery*. There we will find papers from men that we all know and on subjects which are familiar to all of us, for instance, on Hernia, on Abdominal Surgery of Canines and Felines, on Lameness, on the Surgical Treatment of Colics, on Roaring. An interesting paper from Prof. Hobday of England is also presented.

The *Section of Sanitary Science and Police* occupies a great portion of the contents of *Proceedings*. Glanders, Biologic Diagnosis, Hog Cholera, Controlling of Chicken Pox, Sore Head or Contagious Epithelioma, Immunity against Tuberculosis, Meat Inspection, Dairy Sanitation, etc., etc. The section has plenty of work on hand, as the subjects under its head are so important and numerous.

The final section is that of the *Association of Veterinary Faculties and Examining Boards*. The papers that belong to it were few, but how full they were of good consideration and valuable remarks and wise suggestions.

The work of the Assembly is closed with all that concise consideration and *Proceedings* are completed by the relation of the social features, Pathological Exhibit, list of attendants, of members, etc., etc.

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And now I have concluded my review of the book. It was not expected that I should go more minutely into this notice; my perusal of it has told me of the impossibility of realizing a more complete examination. If I have stimulated the members who have received *Proceedings* to go into a minute and careful

reading, by which they could not only refresh their minds on the papers they had heard, but also bring back to them the pleasant hours that they passed in those few days of the celebration of the fiftieth anniversary, I will be satisfied in having done it!

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OCULAR REACTION BY TUBERCULINE INSTILLATION.—As I was about reading the concise article of the Bureau of Animal Industry on the ophthalmic test for glanders, my attention was called to the résumé of a communication of Prof. J. T. Heymann, of the University of Ghent, which treats of the reaction by repeated instillation of concentrated tuberculine as a means of diagnosing. The author undertook a systematic study of the question so as to find out a means of diagnosis, as true, harmless and practical as the cuti-reaction and which could take the place of the cutaneous injection of tuberculine.

To that effect he used brute-tuberculine, which with a special count-drop tube, made for the purpose, he introduced drop by drop into the eye—by a method similar to that used with malleine.

The normal condition of the eye being recognized, and it being well cleaned, “the left hand of the operator raises the upper eyelid and leaves two or three drops of the tuberculine fall on the external angle of the eye, which is then submitted to a slight massage, while at the same time pressure is applied on the lachrymal canal. The eye is then opened again, the count-drop tube is introduced under the upper eyelid in the supero-external conjunctival angle and two or three drops of tuberculine are allowed to drop in. The same is done again with the external angle of the inferior conjunctival cul-de-sac and again two or three drops of tuberculine introduced. The eye is then closed and submitted to massage a third and last time.

This first instillation is made in the morning and the reaction that follows lasts about 10 hours. A second instillation can be made four hours after unless the reaction of the first is perfectly positive. The effects are as follows: Flow of tears, red-



ness of the eye, mucus, mucopus, pus, swelling of the eyelids and conjunctiva. These manifestations are readily apparent when both eyes are compared, the one which is tuberculed and the other. The aspect of the discharge may vary in quantity and in coloration, but as soon as it is clearly yellowish or purulent, the reaction is positive.

Prof. Heyman gives long advice to veterinarians who would apply the test and feels so satisfied of the superior advantages of his method that he resumes them in positive conclusions, viz.:

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1. The characteristic suppuration produced by the repeated instillation of brute tubercule appears on an average after about 3 to 10 hours, it is specific of tuberculous infection.

2. In animals free from the disease, the instillation does not promote suppuration; there is practically no ocular reaction in 95 to 97 per cent., a more abundant mucous secretion is only observed in 3 to 5 per cent. of the cases.

3. With tuberculous animals not accustomed to tubercule the oculo-reaction is surely positive in about 95 per cent., doubtful in 3 per cent. and entirely negative in 1 or 2 per cent. only. It is therefore more true than the thermo reaction.

4. In tuberculous animals, accustomed to tubercule by previous, old or recent in action, the positiveness of the oculo-reaction goes beyond 10 or 20 per cent. above that of the thermo reaction.

5. In animals with temperature normally high, in those that have a temperature of fever by tuberculous injection or other that cannot be tuberculed by injection, the oculo-reaction gives results which are as correct as in animals which have a normal temperature.

6. With animals with tuberculosis beginning, the oculo-reaction will reveal the tuberculous infection sooner and more surely than the thermo reaction, specially if the beginning infection is accompanied with fever.

7. Intercurrent ocular suppuration likely to resemble the

specific suppuration is almost never observed, while inter-current febrile manifestations, not specific, are quite frequent; hence the positive errors of the oculo-reaction will be also much more rare than those of the thermo-reaction.

8. Oculo reaction is much less harmful than the injection.

9. Instillation of tuberculine in the eye does not promote permanent lesion of that organ.

10. The operation is much more practical as it can be performed in less than 12 hours. From 100 to 300 animals can be easily examined in one day if properly stabled.

11. Ocular suppuration lasting for several hours is seen by the owner, who is easily convinced of the condition of his animal.

12. The operation can be repeated on the same eye or on the other in cases of doubtful reaction or also of positive. It can be renewed immediately or later to confirm the diagnosis.

13. As it can be made at will it permits lasting and better control.

14. On account of all those advantages it deserves to become the method of choice.

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EXPERIMENTAL PULMONARY TUBERCULOUS REINFECTION.  
—In other words the bacteriologic concept of the tuberculous soil has been the subject of a series of experiments that were made by Doctor Bezançon and de Serbonnes which were reported lately in the *Presse Medicale*.

The inoculation of bacilli of human tuberculosis in the dose of 1 to 2 milligrammes, made in the trachea of a healthy guinea pig, gives rise to a tuberculous broncho-pneumonia, rapidly arriving to massive caseification; the inoculated bacilli are found in considerable quantity in the alveoli, where are found lesions similar to those found in caseous pneumonia.

By opposition, if bacilli are injected by the same way and in the same dose, not to fresh healthy guinea pigs, but to some already tuberculous, in having received several weeks previous

a virulent subcutaneous inoculation of bacilli and showing already, on account of the beginning of the generalization of the infection to the lungs, small tuberculous granulations in those organs, entirely different lesions are observed; the very day of the reinfection there occur allergic phenomenas, characterized by a great congestion of the alveolar capillaries and clinically by a great dyspnea, likely to promote death. This, however, most often does not occur, the animals resist, dyspnea subsides and the subject will survive much longer than the fresh guinea pigs controls, in oculated in the trachea. The guinea pigs, submitted to reinfection, do not indeed have caseous bronchopneumonia, but catarrhal alveolitis which ends in diffuse interstitial sclerosis with changes in the endothelium; the bacilli not multiplying are difficult to color in the alveoli.

Those experiments bring a favorable contribution to the doctrine, which claims that, for at least in a great part, what is called a tuberculous soil is a state of bacteriologic order, related, according to the organism is sensitive or refractory, to the absence of any anterior vaccination or on the contrary with the development of a relative immunity by a slight previous infection.

These results confirm the opinion of Metchnikoff and Burnett, of Calmette, who have shown the rapid progress of tuberculosis and the frequency of the massive caseous lesions in people, indemn until then of all tuberculous infection, by opposition to the slow evolution and the predominance of the fibrous forms found in civilized people, exposed since their infancy to slight contagions.

They also help us to understand the fact, apparently paradoxical, of the long resistance that tuberculous individuals present, against oculo reinfection, to which they are constantly exposed as soon as they are carriers of open lesions and perhaps also the disproportion, which exists between the extreme sensibility of the young child to a first tuberculous contagion and the lack of receptivity of the adult to new contagions.

Finally, they show that the state of resistance does not only

offer advantages, but that the state of hypersensibility that follows is not without any danger; the possibility of the apparition, at the very moment of the reinfection, of sudden accidents, susceptible, as demonstrated lately by Rist and Kindberg for the kidney, to explain some cases of unexpected death, observed in the course of a chronic pulmonary tuberculosis.

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### AN ARRAY OF FACTS ABOUT THE ARMY VETERINARY SERVICE BILL (H. R. 4541) AND A LAST WORD.

1. May 1, 1913. The bill was introduced into the House by Mr. James Hay, of Virginia, chairman of the House Committee on Military Affairs, and he sent it to the War Department for comment.

2. June, 1913. The War Department, after due consideration by the Secretary of War, the Chief of Staff, the Quartermaster General and the Surgeon General, returned the bill to Mr. Hay with its complete endorsement.

3. February 4, 1914. A hearing of our professional representatives was had on the bill, and on that date the measure

(H. R. 4541) passed the House Committee on Military Affairs unanimously—which finished the first reading.

4. February 5, 1914. The same bill that passed the House Military Committee was introduced into the Senate by Mr. Kern, leader of the Democrats.

5. Two hearings were had before the sub-committee of the Senate Committee on Military Affairs (chairman, Senator Luke Lea, of Tennessee), and in the early part of June, 1914, a favorable report was made by that sub-committee to the Senate Military Committee as a whole.

6. June 26, 1914. The bill passed the whole Senate Committee on Military Affairs and was recommended for passage on the floor of the Senate.

7. June 29, 1914. The bill passed, without a vote against it, on the floor of the House of Representatives.

8. After the bill had been passed by the whole Senate Military Committee it was put on the calendar of the Senate ready for its last reading and final vote on the floor of the Senate. There the bill has not yet been called up; but it may be reached any day soon.

9. Up to September 2, 1914, sixty-six senators have indicated their intention of supporting the bill, and each day adds to the poll of those on whom we feel we can depend to support the measure when it comes to a vote on the floor of the Senate. This is the same as saying that all the senators of thirty-three states are for the bill.

10. The Senate has in contemplation the setting aside of two or three days for taking up bills waiting on the calendar, all the work upon which has been done, except the final vote on the Senate floor. Our professional representatives are endeavoring to get as many senators as possible to agree to take up our bill as one of these.

#### A LAST WORD.

As Poor Richard said: "A word to the wise is sufficient." The chain of events concerning this bill is almost complete. A

German savant has written complainingly that in the present crisis Europe has "placed a ring around the breast of Germany" and threatens its very life. The veterinary profession of America, with the kindly assistance of its hosts of friends from all parts of our country, has thrown a girdle around Congress, and the pressure has almost completed its results. The people have spoken and Congress is hearkening. It is high time for every loyal veterinarian, who may have neglected to train the artillery of his influence on his senator, to do so at this time of last opportunity. You can be helpful if you follow Benjamin Franklin's injunction: "Resolve to perform what you ought; perform without fail what you resolve."

G. S.

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#### CHATTANOOGA THE CENTRAL MEETING PLACE FOR NEW ORLEANS CONVENTIONISTS.

In our August issue, under the caption, *Pleasurable Anticipations in Connection with the A. V. M. A. Meeting at New Orleans*, we described some of the beauties to be seen and enjoyed by going by way of the New York and New Orleans Short Line, leaving New York on the Pennsylvania and thence over the Norfolk and Western. Our narration of the beautiful scenery of Virginia included a description of Natural Bridge and the wonderful Caverns of Luray, which any who have not previously had an opportunity to read, should do so before reading our present article. Our thought was that perhaps Natural Bridge and Luray Caverns would be visited enroute to New Orleans, hence our description of them first. But we purposely refrained from discussing traveling plans at that time, feeling that it would be better to have an expression come from our readers after reading of the beauties throughout the land over which they would probably travel on their way toward the Gulf. After our editorial was in type, however, we received a letter from the Eastern Passenger Agent of the Norfolk and Western Railway



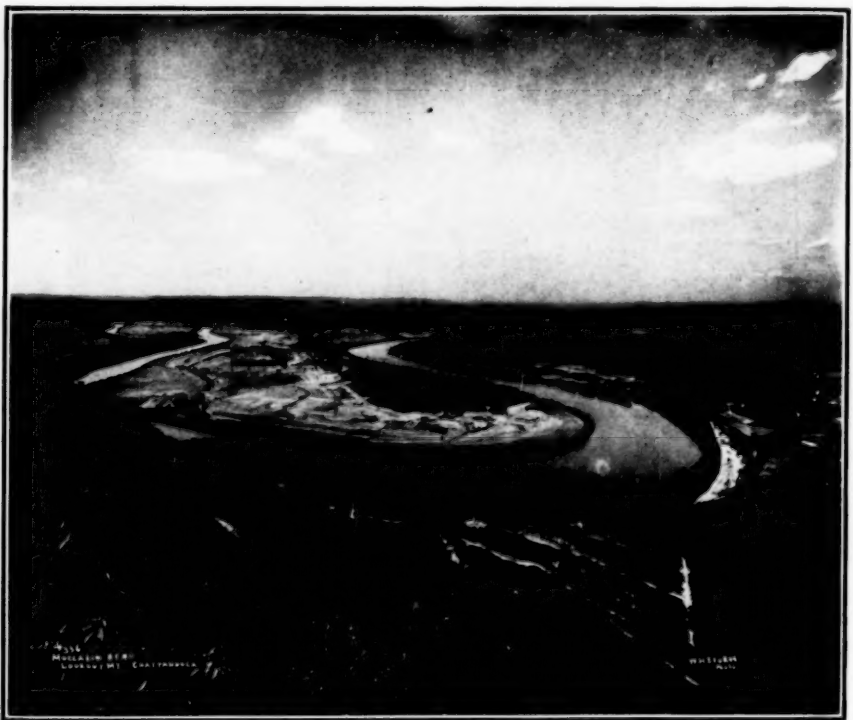
(which we published), suggesting that if we select their route we visit Chattanooga going and Natural Bridge and the Caverns on the return trip. We therefore will now endeavor to depict some of the sights in and around Chattanooga. This historic city is almost at the junction of three great states—Tennessee, Georgia and Alabama, and would be an ideal place of rendezvous for the veterinarians from Canada and the North, the Eastern, Western and Southern States; arrangements being made for a



LOOKOUT MOUNTAIN.

stop-over of a given time in which to see the wonders of this region that was regarded as the "key to the South" at the time of the Civil War; then proceed in a body to the convention city. Everyone who has not visited Chattanooga wants to do so, and it would be difficult to conceive of pleasanter auspices under which to make the trip. This city was once the camping ground of the most populous Indian tribes in the Central South. Until 1830, a little settlement on the bank of the Tennessee, known as "The Landing," was what is now the city of Chattanooga. From John Ross, a Cherokee chief, the name was changed to Ross' Landing, and remained such until 1839, when Chattanooga was incorporated. From the time the Indians were removed in 1838 until the outbreak of the Civil War, Chattanooga grew slowly.

In 1840 the population of the city was 500, including whites, Indians and negroes. The first census taken following the war, in 1870, showed the population to be 6,073. The forty years since that date has witnessed the marvelous transformation into a city of 102,000 people according to the 1914 census. This city has adopted the commission form of government and looks forward to better conditions as a result. The climate is equable, the average temperature of the year being 60 degrees. It is described as having a "year around" climate, and is therefore both

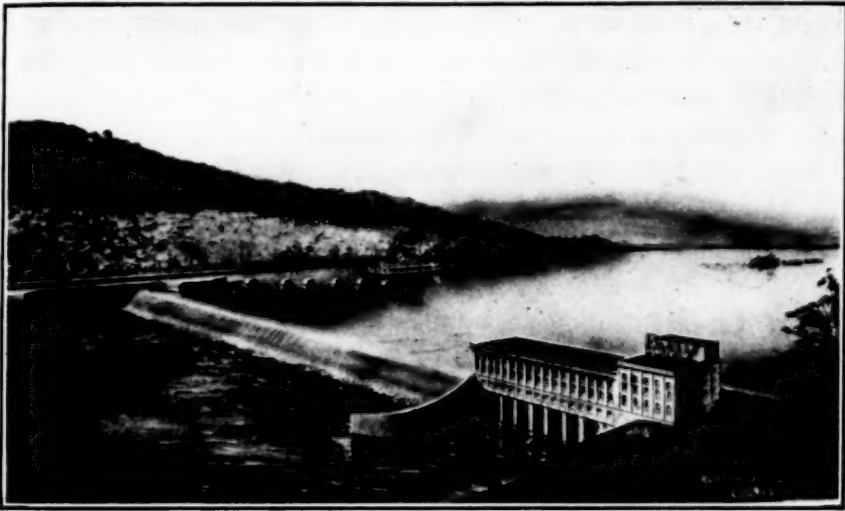


MCCASIN BEND FROM LOOKOUT MOUNTAIN, CHATTANOOGA, TENN.

a winter and summer resort, where one may escape from the two extremes of climate. The city is 700 feet above sea level, has mineral springs and is a great health resort. Lookout Mountain, famed in song and story, is 2,126 feet above sea level and 1,491 feet above the level of the Tennessee River. Our party may



stand upon the top of this mountain and get a view of seven states. On this mountain is the \$100,000 New York Peace Monument, erected by the Empire State as a memorial to her sons who fought in the Chattanooga campaign. The battlefields may be viewed from this point; also Moccasin Bend. Around



LOCK, DAM AND POWER HOUSE OF BRADY POWER PLANT, ON TENNESSEE RIVER, CHATTANOOGA, TENN.

Chattanooga endless beauty and grandeur attracts the eye. Signal Mountain, Rainbow Falls, with handsome bungalows, the Signal Mountain Inn, golf links and every means of pleasure and recreation. There is Chickamauga Park, once the Chickamauga battlefield, and Fort Oglethorpe, about forty minutes' ride from Chattanooga on the electric trolley line, can also be reached by a steam road. The old roads used by the soldiers of both armies have been reopened, the underbrush cut from 6,000 acres, and the battlefield is now in essentially the same condition as it was at the time of the great battle. Observation towers seventy-five feet high afford excellent views of Chickamauga Park and Missionary Ridge. The crest road on Missionary Ridge rivals the famous seventeen-mile drive at Monterey, California, in scenic effect. During the Spanish-American War, within the

memory of all of us, 60,000 soldiers were encamped at one time on the Chickamauga battlefield. Water power plants on the Tennessee and Ocoee rivers are prepared to contract for delivery up to 150,000 horse power in electrical energy to Chattanooga and the surrounding territory. And so we might drift from the historical and scenic into the industrial; as Chattanooga is a wonderful industrial centre. Iron, steel, timber products, clays and minerals, textiles, etc., etc., but we will leave those things which we find in most large cities to the imagination until we reach that great city of the South, when we will find ourselves looking up at large city buildings just as elsewhere. We have only just begun a description of Chattanooga, and yet we feel that we have said enough to convince our readers that when we suggest making it a meeting point for our members, from which to proceed to the "City of Romance" in a body, we have not asked them to meet at a cross-roads; for no less than ten lines of railroad radiate from Chattanooga, and last year 20,000 passenger trains entered Chattanooga's two passenger depots, the Terminal Station and the Union Depot. It is estimated that at least 175,000 tourists avail themselves of the stop-over privileges each year, from which it would seem that there is a wonderful attraction for this truly wonderful city. Let us have an expression on the suggestion that we make Chattanooga our central point from which to proceed in a body to New Orleans! We will welcome your views and give them publicity in our November number.

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### THE HORSE STILL OF FIRST IMPORTANCE ON THE BATTLEFIELD.

Far sighted business men have for years urged more extensive breeding of horses in the United States, maintaining that there would always be a market for good ones. Others have been more specific and have urged the more extensive breeding of horses suitable for cavalry remounts, as it has been apparent for

some time that that class of horse is deplorably deficient in this country. The same men have deplored the exportation of our best thoroughbred sires, which are the foundation from which the class of horse referred to must spring. That there has been a deficiency of that class of horses for home use, should conditions arise calling for cavalry equipment, has long been recognized, but the recent European war has driven the fact home, so that no person not rendered prejudiced by mechanical mania can fail to realize that the horse is a very potent factor in war, despite all the mechanical devices that have been introduced in the last decade. Had breeders in this country been breeding that type of horse extensively for the past ten years they would find a ready market for many thousands of them at the present time, as we have learned that thus early in the conflict the different countries engaged have deemed it expedient to replenish their horses and have sent agents to this country to purchase horses in large numbers. This country should learn its lesson from Europe in that respect, where it has been clearly demonstrated, just as it was in the Boer war, that the use of mounted troops in heavy masses is just as effective as it was in our Civil War, the invention of automobiles, aeroplanes and dirigible balloons, notwithstanding.

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DR. MCKINNON ENGAGED—The *Manila Daily Bulletin* announces the engagement of Dr. J. A. McKinnon, veterinary inspector for the army in the Philippines, and Leila A. Stark, of the army clerical service, at the land transport depot. The date for the wedding has not been fixed as yet.

Dr. McKinnon is one of the most popular of the early arrivals in the islands, having come here in 1902. He is in charge of the veterinary hospital at the land transport depot in addition to his other duties. He is also president of the veterinary examining board of the islands, and a prominent Elk.

Miss Stark, the charming young bride-to-be, is a recent arrival in the islands, having come here in April, 1913. Her home city is Portland, Oregon. She resides with Mr. and Mrs. Virgil on calle A. Mabini.

## ORIGINAL ARTICLES.

### ANAESTHESIA—LOCAL AND GENERAL.\*

BY PROFESSOR G. H. WOOLDRIDGE, F.R.C.V.S., ROYAL VETERINARY COLLEGE,  
LONDON.

Anæsthesia, in the broad sense of the term, is "suspension of sensation," whether due to disease or injury or brought about by various agents called anæsthetics for surgical purposes. It is this so-called "surgical anæsthesia" that is to be dealt with in the course of this report.

The chief objects of anæsthetics in surgery is the abolition of pain during operations, the prevention of various reflex movements, and the production of muscular relaxation. They are thus very valuable agents from the humanitarian aspect, and also from the surgeon's point of view by facilitating diagnosis and treatment.

Anæsthetics may be either *local* or *general*, the former acting only on the part to which they are applied, and the latter acting on the central nervous system and causing complete loss of sensibility. The production of local anæsthesia is thus indicated for surgical operations on limited areas, and also when it is considered dangerous to produce general anæsthesia on account of some defective condition of the patient. General anæsthesia is indicated, or called for, in the more serious or major operations involving larger areas or body cavities, in bad cases of dystocia, to relax muscles in the reduction of herniae and luxations, and for the setting of fractures; and also, in the case of the dog, particularly, to cause relaxation of the abdominal muscles to facilitate the examination of the abdominal contents for diagnostic purposes.

The general advantages of anæsthetics both to the patient and the operator are now so well recognized, that in the British Isles, at any rate, their use is daily becoming more general, and I trust

\* Reprinted—Tenth International Veterinary Congress, London, 1914.

that the day is not far distant when no operation involving pain will be performed without the assistance of some anæsthetic or analgesic.

### LOCAL ANÆSTHESIA.

Local anæsthesia can be brought about by various means. The old methods consisted of the compression of nerve trunks and the application of cold. The former was brought about by the use of the tourniquet, an agent now rarely used for that purpose, although still of great service in the practice of hæmostasis during operations on the limbs. The application of cold was accomplished by a mixture of equal parts of pounded ice and common salt in a muslin bag, and kept on the part for five or ten minutes until it was practically frozen. This method was superseded by the use of a spray of anhydrous ether or of ethyl chloride to freeze the part by rapid evaporation. These methods are not advocated now, as both the freezing and thawing processes are more or less painful, and if the part is too well frozen the healing process may be considerably retarded.

The local anæsthetics now employed are various chemical agents which produce paralysis of the peripheral endings of sensory nerves. They include cocaine, eucaine, holocaine, novocain, stovaine, acoine, tropacocaine, and hydrochloride of urea and quinine, and they may be used singly or in combination, either by painting on to the surface or by injecting into or round the part to be anæsthetized, or by injecting over the trunk of the nerve supplying the part. Excellent advantage can be taken of this latter method in anæsthetizing the foot of the horse both for operations within the hoof, where for obvious reasons the local anæsthetic cannot be directly injected into the tissues, and also for assisting in the diagnosis of the seat of obscure lameness by the process of exclusion. In such cases the anæsthetic may be injected over the plantar nerves above the fetlock joint.

Cocaine was the first chemical agent used in the production of effective local anæsthesia. (It was used for its effect on the eye about thirty years ago.) We will consequently consider cocaine

first, and treat it later as a standard of comparison for various substitutes that have been introduced since Schleich demonstrated its wonderful utility when infiltrated into the tissues.

The pure alkaloid cocaine is only very sparingly soluble in water, but its salt, the hydrochloride of cocaine, is freely soluble in water and alcohol, and, being equally efficacious, is employed. When a five per cent. solution of cocaine HCl is applied to a mucous membrane or injected into the cutaneous or subcutaneous tissues, the first noticeable effect is pallor due to vascular contraction occurring in about one minute; two or three minutes later the part has become insensible to pain and touch owing to paralysis of the sensory nerves of the part. This is due to a direct affinity on the part of the cocaine for the cell protoplasm, especially of the sensory nerve-endings. This affinity for protoplasm should be well remembered when deciding upon the strength of the solution to be employed. The writer has frequently observed that when more concentrated solutions than 5 per cent. are infiltrated into operation areas, the healing of the operation wound is very materially retarded. The affinity of the cocaine in those strong solutions is such that it actually becomes a cell poison, and either markedly reduces the vitality of the cells or even destroys it, and healing by "first intention" is rendered impossible. The writer, therefore, in the light of further experience, prefers to employ for infiltration anæsthesia larger quantities of weaker solutions, and injected at a series of points round the operation area, rather than a smaller amount of a stronger solution injected directly into the site of operation, a view contrary to one which he expressed several years ago when writing on the same subject. For injection into the tissues, 1 per cent. to 4 per cent. solutions are to be preferred to the stronger solutions, though the latter, from 5 per cent. to 10 per cent., may be employed over a nerve trunk to produce conduction anæsthesia of a part below. In such cases the cells of the part directly exposed to the cocaine are not further mutilated by the operation incision, and the ill-effects are not so likely to occur; moreover, the anæsthetization of the remote parts is more likely to be complete.



When injected under the skin the area anæsthetized extends about an inch round the point of the needle. The insensibility occurs in from three to five minutes, and lasts from twenty to thirty minutes.

The amount of cocaine that can be injected with safety and without causing muscular spasms likely to interfere with operation varies with the idiosyncrasy of the patient. In the small or so-called toy dogs one-tenth of a grain (*i. e.*, 10 minims of 1 per cent. solution) for each pound body-weight is usually quite safe. In larger dogs the same proportion may be employed, but in any given case 2 gr. (40 minims of 5 per cent. solution or 100 minims of 2 per cent. solution) must be regarded as the maximum amount. In the cat the same proportion may be employed, but one-quarter of a grain must be regarded as the maximum safe dose.

In the horse the maximum dose is 10 gr., an amount which is rarely required. Some horses are much more susceptible than others, and I have seen great excitant toxic effects follow the hypodermic injection of 2 dr. of a 5 per cent. solution containing about 6 gr. of cocaine. Two grains in 40 minims of water injected over each plantar nerve will completely anæsthetize a horse's foot. I have no experience in the use of cocaine in cattle, except for the eye in cases of chaff under the eyelids, in which case it is very effective, allowing the foreign body to be removed quite painlessly, and in the operation for carcinoma of the orbit.

The local anæsthetic action of cocaine is much improved by combining with it solutions of suprarenal extracts as adrenalin, or its synthetic substitutes suprarenin, adnephrenin, and renastypin. These agents cause a contraction of the vessels at and around the seat of injection, rendering the part anæmic, and reducing the local circulation. Consequently the absorption of the cocaine into the general system is retarded, and the local anæsthetic action is rendered more complete and more prolonged. Less cocaine is necessary, and the danger of poisoning is thus reduced in both ways. The operation is further facilitated by being almost bloodless. The amount employed is from 5 to 10 minims of 1:1000

solution for dogs, and up to 1 dr. of a similar solution for horses.

When small doses of cocaine are absorbed into the general circulation, the effect is to act as a restorative and general stimulant of the central nervous system, and is consequently a very useful agent for producing local anæsthesia and minimizing surgical shock in weak animals, especially dogs, when general anæsthesia is regarded as dangerous.

When too large doses of cocaine are injected toxic symptoms are set up. A few minutes after the injection in such cases the patient begins to lick his lips and salivate, the eyes become dilated, and visual accommodation is interfered with, excitement and hyperæsthesia are produced, the ears are moved rapidly backwards and forwards, and there are well-marked muscular twitchings or clonic spasms, and interference with co-ordination of movement, while horses paw the ground and are often difficult to control. This state of affairs, and particularly the muscular spasms, obviously defeat the object of the administration of the cocaine, and it is impossible to proceed with the operation until the symptoms subside, which may be several hours later. In the smaller animals it may prove fatal by paralyzing vital nerve centres and causing syncope or asphyxia. If one wanted to be certain of killing a dog by cocaine, however, it would be necessary to inject from 5 to 8 gr., according to size, which would be fatal in about half an hour, while from 2 to 3 gr. is necessary to be certain of killing a horse. The best antidotal treatment in susceptible animals appears to be the administration of either morphia or caffeine hypodermically, or a good dose of strong coffee, together with perfect quietness.

Owing to the toxicity of cocaine, a number of very useful synthetic substitutes have been introduced, their chief recommendation being that they can be used with much greater safety in the smaller and more susceptible animals. These agents include novocain, B-eucaine hydrochloride, hydrochloride of urea and quinine, stovaine, holocaine, tropacocaine, acoine, and others.

I have had considerable experience with each of these three first-named, and I do not recollect having any untoward results



from any of them, using them in precisely the same manner as cocaine. They each have certain advantages over cocaine, and, like cocaine, their effect is improved by a combination with a hæmostatic.

*Novocain* is a non-irritant local anæsthetic freely soluble in water, and may be sterilized by boiling. It may be used in similar strengths (2 per cent to 5 per cent. solutions) as cocaine, and in much larger quantities without the danger of producing toxic effects. I consider novocain to be about the best of the local anæsthetics.

*Hydrochloride of B-eucaine* is also a very good local anæsthetic. Compared with cocaine it is less toxic, its action is longer in commencing, but also more prolonged. It can also be sterilized by boiling. It is often advantageous to combine cocaine and eucaine in order to obtain the quicker action of the former and the more prolonged action of the latter. When combined the solution should only contain half the percentage of each ingredient.

*Hydrochloride of urea and quinine* is probably the least toxic of all the local anæsthetics. It is effective in solutions of 1 per cent. to 5 per cent., and can be used on quite young animals with perfect safety, and it is very cheap. It is, however, very slow in bringing about anæsthesia, and requires to be injected about thirty minutes before operating; while, on the other hand, its effects are very prolonged, extending in many cases even up to twenty-four hours. The advantages of this is, of course, very obvious in many of our patients, as it reduces the tendency of the patient to interfere with an operation wound during, at any rate, the first day. It does not appear to possess any effective hæmostatic property, and may be combined with adrenalin with advantage. I have amputated digits in dogs, and excised tumors in dogs and horses in comfort without any indication of pain in nervous animals that have objected strongly to the primary introduction of the hypodermic needle.

*Spinal Anæsthesia.*—Intraspinal injections of sterilized local anæsthetics introduced in the lumbar region may be used to pro-

duce anæsthesia in the posterior part of the body and the hind limbs. Under this anæsthetic quite serious operations in the human subject can be performed painlessly in patients for whom general anæsthesia would be dangerous. Macqueen, in "Veterinary Medicines" (Finlay Dunn), says: "The injection is made through the lumbo-sacral space at the point of intersection of two lines, one median uniting the last lumbar and first sacral vertebræ, the other transverse connecting the summits of the internal angles of the haunch." The entrance of the needle into the subdural space is indicated by the escape of cerebrospinal fluid. The present writer has no experience of this method, and would with difficulty be persuaded to attempt it, since equally advantageous results in the smaller animals may be obtained by other means much less dangerous, such as the application of a local anæsthetic in combination with the administration of a full dose of morphia half an hour or an hour previously. The chief objections are the uncertainty of absolute asepsis, the difficulty of injecting the anæsthetic into the proper place, and without injury to the spinal cord, and the serious nature of the complications if they should arise in this particular situation. In the larger animals, moreover, the distance of the spinal canal from the skin renders the injection still more difficult.

#### GENERAL ANÆSTHESIA.

As already indicated, general anæsthesia implies a temporary complete suspension of consciousness and of sensation. The writer would differentiate it from narcosis, in that in the case of the latter the loss of consciousness is not complete; an animal can be wakened up by such things as a loud noise or a smack, only to fall off to sleep again without the administration of any further agent; the narcosis is more tardy in being produced, and is much more prolonged. The effect of a general anæsthetic is more rapidly induced, more complete, but more transient. A patient regaining consciousness or awakening from a general anæsthetic does not again lapse into unconsciousness without further ad-

ministration of the anæsthetic. The difference between the effects of morphia and chloroform well illustrates the writer's contention.

The method of induction of general anæsthesia is by inhalation and the principal agents employed include nitrous oxide, chloroform, ether, and mixtures of alcohol, chloroform and ether, such as A.C.E. mixture (alcohol, 1 part; chloroform, 2 parts; ether, 3 parts), and A.E.C. mixture (alcohol, 1 part; ether, 2 parts; chloroform, 3 parts). Of these chloroform is the most effectual, and, if properly administered in veterinary practice, it is a very safe anæsthetic. Proper administration includes the preparation and the preliminary examination of the patient as to the condition of the heart and lungs in particular. If the heart is weak, irregular, or intermittent the administration of chloroform for anæsthesia is decidedly dangerous, and the same applies when there is fluid in the chest, and, to a smaller degree, in cases of destructive lung disease, such as consolidation or extensive emphysema.

*Preparation of Patients for Chloroform Anæsthesia.*—The horse is an excellent subject for chloroform, and requires but little preparation. Except in the cases of urgent operations it is well to keep the patient on a laxative and somewhat restricted diet for a day or two, completely withholding long hay or bulky food the night before, a muzzle being put on to prevent him eating his bedding. On the morning of the operation he may have a limited allowance of water and a small feed, such as a bran mash.

*In cattle* the preparation is similar. Cattle are quite good subjects.

*Adult robust dogs* are good subjects for chloroform if administered with care. Very young and very fat dogs are bad subjects. Especial care must be taken with the toy breeds and the short-nosed varieties, as bulldogs and pugs. The food should be diminished the day before, and only a light meal given on the morning of operation, and not within two or three hours of the operation.

*Adult cats* are good subjects for chloroform if plenty of air is allowed, but ether and A.C.E. mixture are usually safer.

#### ADMINISTRATION OF CHLOROFORM FOR ANÆSTHESIA.

Horses and cattle are usually cast with hobbles, and all undue pressure on the throat and chest avoided. The chloroform may be administered in the standing position if there is plenty of room. The latter method may be advocated in the case of very refractory horses that are difficult to cast, and with some old horses with ankylosis of the spine, and whose back might be injured if cast in the usual way. The injury to the back, however, is usually due to violent muscular contractions while under restraint, and is rarely or never brought about by the act of casting. I do not, however, regard the procedure of chloroforming standing with favor. Although in some cases the horse may submit very quietly to the process, in other cases he will become somewhat violent, and will rear or plunge, or may fall over backwards. If done in a large loose box or operating theatre he is also likely to get down in a corner in an awkward position. I quite realize the advantages in cases where the horse cannot be cast, but where casting is possible I regard it as an infinitely preferable method of procedure.

#### *Apparatus for Horses.*

For the administration of chloroform vapor a muzzle or inhaler is necessary, and there are several varieties commonly used in England.

(a) The simplest is one commonly used in this country and known as *Cox's inhaler*. It consists simply of a cylinder of leather or tarpaulin, which fits only on the upper jaw, passing in the mouth to the commissures of the lips. It possesses a running string round the top, so that it can be drawn tightly round the nose to prevent or reduce the ingress of air. It is held in position by a strip which passes over the poll. The chloroform is poured on to a sponge previously squeezed out with hot water to facilitate volatilization, and is inserted into the free end of the

cylinder, which is then closed with a towel to limit the ingress of air. The nostrils should be first smeared with lard to prevent the chloroform blistering the skin, unless the muzzle is made with a wire or string netting across its interior to prevent the sponge coming into contact with the skin.

(b) *Carlyle's chloroform muzzle* is a very good one, but in the writer's experience not quite so safe as the former, as it may exclude too much air and cause asphyxia. It fits closely round the nose and mouth by means of a small bolster, while the other end is quite closed, except for a slot into which fits a tray with a sponge guarded by a wire netting. The chloroform is poured on to the sponge and the tray inserted, and then the end is completely closed by means of a leather flap.

(c) *Roberts' muzzle*, as used by the late Mr. Richard Roberts for the administration of chloroform in the standing position. It consists of a leather cone, fitting tightly over the lower end of the face by means of a bolster and strap. At the lower end of the cone is a hole into which fits a fairly large cork or bung. The chloroform is poured onto a sponge loose inside the mask and the cork inserted. More chloroform is inserted as necessary by the removal of the bung. It appears to me that by this method and the Carlyle method the result is attained by partial asphyxiation, a course open to grave objections from the humanitarian standpoint and causing great distress to the patient in the early stages of the procedure.

(d) *A modification* of Junker's method has been applied by Hoare to the horse. It consists of driving air by means of a foot bellows through chloroform in a flask and on into the mask applied to the face. This is probably the most scientific method, for in this way the amount of chloroform vapor being inhaled can be most easily controlled. It is, however, by far the most laborious method, and since the horse is such an excellent subject, such a nicety of concentration or dilution of the chloroform appears to be quite unnecessary, and, taken as a whole, the method is not as satisfactory as some of the others. I have also seen a horse asphyxiated by this method.



(c) The muzzle introduced by Mr. Nelder, of Exeter, appeals to me as being the best of all. It consists of two portions; the one placed first over the lower end of the face is cylindroid and made of tarpaulin, and to its upper portion is fitted a bolster, which can be drawn tight and so prevent the entrance of air from above. It is fastened over the poll by means of a strap. The lower end is closed by a disc of leather much perforated, through which respiration takes place. A deep leather cap is made to fit over this, and is held to the former portion by straps and buckles. It holds a circular piece of felt or a sponge on to which the chloroform is poured, and when in position this is held against the perforated disc of the muzzle. All air passes between the two portions and over or through the sponge, and the amount of air is regulated by the closeness or otherwise of the outer portion to the inner by tightening the buckles or relaxing them. In no case should it be drawn quite tight, since partial asphyxiation should be avoided. I consider this to be the best chloroform muzzle for a horse for administration either standing or in the recumbent position.

In chloroforming the horse with either inhaler *a*, *b*, *c* or *c*, from 6 dr. to 1 oz. of chloroform should be first applied to the sponge, and further amounts of 2 dr. to 3 dr. at a time as required. With good subjects, if administered without waste, 1 oz. to 1½ oz. is sufficient to anæsthetize him in about ten minutes, and a total of 2 oz. to 3 oz. will keep him well under for half an hour or so. In England it is a common thing to exclude as much air as possible, but the writer does not entirely agree with the practice. He realizes that anæsthesia is more quickly obtained by this means, and that it is more economical of chloroform, but it is at the expense of partial asphyxia. He prefers to allow more air and to use more chloroform. If given standing, however, a much larger dose is given to begin with, as 1½ to 2 oz., or even 3 oz., owing to the difficulty of repeatedly adding small doses. Some horses appear to be very resistant and practically immune to the anæsthetizing action of chloroform. Macqueen quotes a case in which he gave 14 oz. without producing anæsthesia, and the writer has also seen 16 oz. administered in vain.



*Apparatus for Dogs and Cats.*

Chloroform is best administered to dogs stretched in a prone position on the operating table; collars should be removed.

The simplest apparatus consists of an ordinary wire muzzle, and over it a towel, which should be only one layer thick, and to which the chloroform is applied by means of a drop-bottle. This method is only safe for large and adult dogs, care being taken to allow plenty of air, and not to be too free with the chloroform.

Another very simple and effective method is to pour chloroform on to a piece of lint or wool contained in a chip box and held over the nose. By this method there is an unlimited supply of air, and although it has the appearance of a rough and ready method, it has much to recommend it.

Junker's apparatus is good for strong and large dogs. It consists of a cone-shaped mask with an open apex. This is placed on the face, and by means of a pump air is driven through chloroform in a bottle, and, thus saturated, is passed on into the muzzle. On passing through the bottle the air takes up about 2 per cent. of chloroform. By means of one's hand at the open apex the amount of fresh air may be regulated and further dilution permitted or otherwise.

Hobday has introduced two modifications of Junker's method, both leading to much greater safety for smaller dogs and for cats. By one method air is *driven over* chloroform and on into the mask. By the other method the pump is placed between the flask containing the chloroform and the mask, and air is *drawn over* the chloroform and passed on into the mask. This latter method is the safest for very small dogs and for cats, as the chloroform vapor is so very dilute (1:1000 to 1:5000), so much so that the method is useless for larger dogs, and must be supplemented with additional chloroform on wool placed in the mouth of the mask. The pump is of rubber, and has an elastic reservoir and a stop tap at the mask to regulate the flow and to get a continuous current of air and chloroform vapor.

The secret of success is the slow but continuous administration and the removal of all restraint to free and easy breathing

*Symptoms of Chloroform Anæsthesia.*

The effect of the inhalation of chloroform vapor can be observed as occurring on four stages, namely, (1) The stimulant; (2) the narcotic; (3) the anæsthetic; (4) the paralytic.

In the *stimulant stage* the first effect is a vigorous struggle of alarm, and that is quickly followed by excitation of the cerebral and cardiac functions. The pupil becomes dilated, and the pulse and respiration are accelerated, and fæces and urine are often passed. Vomition, even in the dog and cat, is very rare. This stage may last from one to five minutes, but is markedly shortened if the patient has previously received morphia hypodermically, or chloral hydrate by the mouth. It is not entirely without danger, especially in cases of cardiac affection, as the excitement may cause arrest of the heart's action, and attempts at restoration are rarely effective. Another danger is that in some cases where the chloroform has been administered in a too concentrated form the respiratory centre may be overstimulated, and respiration may suddenly cease even before the patient has reached the anæsthetic stage. In patients with a normal heart, however, this first stage gradually merges into the second, or *narcotic stage*. In this stage, generally reached within five minutes, there is great depression of the motor centres, and the voluntary muscles become relaxed, commencing at the hind limbs. In the recumbent horse struggling ceases, and the tail becomes relaxed. If administered standing the horse has become unable to support himself, staggers and falls gently, or is easily pushed over. In the dog and cat secured in the prone position the head sinks to the table, and there is often a slight whimpering as though the dog were dreaming. In each case the reflex functions are only dulled, and sensibility is not completely lost. This is a useful stage for controlling labor pains in cases of difficult parturition in both large and small patients, and also for minor operations. In the third, or *anæsthetic stage*, there is complete muscular relaxation and complete loss of consciousness. Reflexes are completely lost, pupils slightly contracted. The pulse and respiration become slower, even and regular. This is the

true surgical stage, and if the chloroform is continued very slowly it can be maintained for an hour or two with perfect safety, since none of the vital nerve centres of the medulla, such as those controlling respiration and the action of the heart, are seriously affected. If, however, the chloroform be administered at this stage either copiously or with very limited admission of air, then a dangerous *paralytic stage* is produced owing to the medullary centres becoming involved. The pupils become widely dilated, while the respiration becomes shallower and stertorous, irregular and jerky, and may suddenly cease. The pulse gets slower and weaker, but the heart may continue to beat several minutes after respiration has ceased. In such cases, if the chloroform is quickly stopped and plenty of fresh air admitted, respiratory stimulants and artificial respiration resorted to, the respiratory function is generally resumed. In some cases, however, if the chloroform has been pushed too far, the respiration cannot be restored, and death occurs from asphyxia. In other cases the heart's action may cease simultaneously with or even before the respiration, and in my experience in such cases have resisted all restoratives and have always proved fatal.

In the Hyderabad experiments of 1888-9 it was clearly demonstrated that when lethal doses of chloroform were administered to healthy animals respiratory arrest always occurred from two to six minutes before cardiac arrest. This confirmed what was previously taught by Simpson, that the careful observation of respiration is of paramount importance for safety in chloroform anaesthesia. Consequently anything with a tendency to impede respiratory functions must be studiously avoided, as already indicated. The anaesthetist must see that the anaesthetic is being administered slowly and regularly, and he must keep a watchful eye on the character of the respirations. He should not concern himself with the work of the surgeon, however interesting it may be, for the chloroform must be withdrawn at the first indication of danger. The anaesthetist must remember that the work of the surgeon, however skillful, is of no avail if the patient should succumb to the anaesthetic.

*The signs of danger* may be summed up shortly thus: Shallow spasmodic or jerky breathing, stertor, cessation of respiration, intermittent pulse, and widely dilated pupils. In the dog and cat also the coat may be seen standing up, and even turning the wrong way.

*Antidotal Treatment.*—At the first indication of danger the chloroform should be stopped and the inhaler removed; all obstructions to free respiration must be removed. The tongue should be pulled forward in the month, and mucus and saliva mopped out. Remove hobbles and admit plenty of fresh air, or even oxygen if at hand. Then administer as quickly as possible a full medicinal dose of hydrocyanic acid, of 2 per cent. solution for horses 1 dr. and for dogs and cats 2 to 5 minims. It may be dropped on to the dorsum of the tongue or injected hypodermically. It acts as a powerful and rapid, though transient, stimulant to the respiratory centres, and in the writer's experience is far the best agent.

Artificial respiration should also be resorted to by rhythmically contracting and expanding the chest by jerking pressure on the chest wall and by alternately extending and flexing fore limbs. Peripheral irritation may also be good, such as cold douche or flicking with a wet towel or a whip.

The *cautious* insufflation of strong ammonia is good as cardiac and respiratory stimulant. Amyl nitrite may be useful by dilating superficial vessels and so relieving the heart. It may be either insufflated, or dropped on to the tongue or injected subcutaneously in doses of 10 to 20 minims for the horse, and 1 to 2 minims for the dog. Hypodermic injections of ether, liquor strychninae or adrenalin may all assist.

In favorable cases respiration starts with gasps in from one minute upwards, and hope should not be abandoned until the artificial respiration has been continued at least fifteen to twenty minutes, or so long as the heart beats, be it ever so feebly. If, however, the heart's action completely stops the case is usually hopeless.

How does chloroform produce its effects? Very exhaustive

experiments in this connection have been carried out by our colleague, G. A. Buckmaster, and his co-worker, J. A. Gardner, and their results are published in the proceedings of the Royal Society. They have shown that the effects of chloroform anaesthesia depend upon the exchange of gases in the pulmonary alveoli and blood, and that the red corpuscles alone act as the chloroform carriers. In the early stages the absorption is very rapid, and less so later on. The red corpuscles convey it to the various parts of the body, and discharge certain small amounts to the tissues, and especially to the central nervous system. The first effect of that is to stimulate the nerve centres, and this stimulation may even approach a lethal value constituting the first danger point previously referred to. It may cause cessation of respiration owing to paralysis of the respiratory nervous mechanism, and is more likely to occur as the result of a deep and rapid respiration, and a higher percentage of the drug administered. If this stage is safely passed the cerebral centres become depressed, and complete anaesthesia may be attained safely. If the chloroform is continued in high dilution elimination takes place by expired air and an equilibrium is established. If, however, a larger quantity of chloroform is rapidly administered it gets into the plasma, and is co-existent with a decidedly dangerous stage in which the respiratory centre is overdepressed, and breathing stops.

The facts that in respiratory chloroform anaesthesia the red corpuscles transport the drug, and that chloroform is not present in the plasma except in dangerously advanced stages, would appear to explain the lack of success following the attempts to produce anaesthesia by the intravenous injection of chloroform. In the opinion of the writer such a method, though worthy of further investigation, does not appear very promising.

*After-treatment and After-effects.*—When the operation is about completed the chloroform inhaler is removed, but in the horse the hobbles should be kept on until consciousness has fully returned. It is a mistake to allow a horse to attempt to rise until there is a reasonable prospect of his being able to support



himself. The time required may be from five minutes to half an hour, or occasionally, even longer. If a horse has been lying long on the one side, the writer has frequently noted that he is likely to rise more quickly and is more able to support himself if he is turned over on to his other side a few minutes before he is allowed to attempt to get up. If, after a reasonable interval, he does not make any effort to rise, he may often be induced to do so, either by flicking with a wet towel or a whip, or by pouring a little water into an ear. When rising he should be supported by an attendant with a short hold of the bridle, and another attendant at the tail. He should then be kept slowly moving with his head to the wind until he completely gains his equilibrium. He may then be put into a loose box, but should not be secured by the head, in case he should fall again. About an hour later he may be offered a drink of tepid water or oatmeal gruel, mashes being offered later. During the first day dry foods and long hay should be withheld. In the case of the dog he should be placed quietly into his apartment and only offered a little milk or a little tepid water for the next few hours. Sometimes the patient will only feed capriciously the next day as the result of nausea, but this condition rarely lasts longer.

Unfavorable sequelæ to chloroform in our patients are very rare. Occasionally a nostril may be blistered when a sponge has been applied to an imperfectly lubricated nose. Pneumonia is sometimes spoken of as being a sequel, but the writer, in an experience involving the use of chloroform in many thousands of cases, has never met with pneumonia directly attributable to chloroform.

*Ether Compared with Chloroform as a General Anæsthetic.*

Ether is more disagreeable to the taste and causes a much larger increase in salivation than chloroform. The preliminary stage of excitement is longer and the anæsthesia more transient. On the other hand, it is less dangerous owing to its less depressant effects. Therefore it is safer to use on patients with weak hearts, and young or fat patients. It must, however, be administered in a much more concentrated form as half ether va-



por and half air, conditions which make it very difficult to use for large animals.

A.C.E. mixture and A.E.C. mixture occupy intermediate positions between ether and chloroform.

In the writer's experience, however, chloroform is by far the best agent for the production of general inhalation anaesthesia.

*The Combination of a Narcotic and a Local Anaesthetic.*

The application of respiratory anaesthesia has the disadvantage of requiring a trained anaesthetist as well as the operator, and owners frequently refuse to pay adequately for such services. A common alternative is for the operator to administer the chloroform and direct it at the same time as operating; an objectionable alternative for obvious reasons.

Consequently, for dogs, the writer very frequently dispenses with chloroform and employs a large dose of morphia, with or without the addition of a local anaesthetic according to the case. The dose injected hypodermically varies from  $1/3$  gr. in a puppy of the toy breeds to 2 gr. or even 3 gr. for adults of the large varieties. After such injection the dog usually vomits in from one to five minutes, and sometimes faeces and urine are evacuated. Narcosis is complete in about three-quarters of an hour, when the operation can be proceeded with. One great advantage of this method is that the dog remains in a state of stupor for eighteen to twenty-four hours, and so refrains from interfering with the operation wounds. For major operations involving the peritoneal cavity, a few whiffs of chloroform may be necessary, but great care must be taken as the excitant stage is practically non-existent and complete anaesthesia is very rapidly produced with a minimum of chloroform.

Chloral hydrate, administered *per os*, or injected into the peritoneal cavity in dogs, has not given such satisfactory results in the writer's experience.

The use of morphia and of chloral hydrate in the horse have also been disappointing, and we have not persisted with them, mainly because we have always found the horse to be such an excellent subject for chloroform.

## RESPIRATORY ANAESTHESIA OF ANIMALS.\*

REPORT BY DR. L. A. MERILLAT, PROFESSOR OF SURGERY IN THE MCKILLIP  
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I have decided to limit my remarks to the above title because the distinguished reporters, Professor Hendricks, Professor Vennerholm and Professor G. H. Wooldridge will undoubtedly present the complete formal discourse on the general subject, and, besides, my experiences with intravenous, hypodermic, intraperitoneal and rectal anaesthesia has been so disappointing from every standpoint that I lack the inspiration to write about them. On the other hand, my experience in anaesthetizing about ten thousand horses and many small animals by inhalations inspires me to report the confidence that can be placed in the old, standard, conventional method.

Naturally we Americans are proud of our achievements in this connection. We seldom fail to point with pride to that historical event in the Massachusetts General Hospital in November, 1846, where the first major operation under inhalation anaesthesia was performed. Dr. W. T. G. Morton, under whose supervision the anaesthesia was administered for this eventful operation, is a much revered man with us, and while we are not unmindful of what followed in Europe to bring his discovery into greater prominence than was possible in America at that time, we are more and more inclined, as surgery progresses, to claim for Morton a place among the great benefactors of the human race and of the animal kingdom. At least, an American speaking abroad would be accused of a sin of omission if he failed to pay tribute to Morton's memory while dealing with the subject of respiratory anaesthesia.

Veterinarians in America—and, I believe, the world over—have been very slow to avail themselves of this most effectual

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\* Reprinted—Tenth International Veterinary Congress, London, 1914.

and most certain method of controlling surgical pain. Substitutes for this complete general anaesthesia, which only stupefy surgical patients, and local anaesthetics have always attracted more attention in the veterinary profession. Our current literature is often full of new methods of anaesthesia, but it is signally lacking in instructions on the administration and proper management of inhaled anaesthetics. We seem to be acting toward respiratory anaesthesia as if it were an exact science of which everyone is master; as if we had exhausted all of its possibilities, and, finding it faulty, we must now seek for other methods; and as if it were attended with obstacles or dangers which make it inapplicable to our work. In short, respiratory anaesthesia is still little used, and is still too little understood in the veterinary profession. It has never been extensively practised.

Anaesthesia extending to the point of complete relaxation of the musculature, in the hands of the untrained, is an exceedingly hazardous state. If prolonged for an hour or two the hazard increases. On this account a veterinarian about to perform an operation of some duration, the technique of which will require his full attention, is always inclined to avoid this method of controlling pain. In fact, it does offer disadvantages he cannot easily overcome. Trained anaesthetists are not numerous, certainly not within the reach of all veterinarians, and where one can be procured, the added cost to the already ill-paid surgeon prevents his employment. When the anaesthesia is entrusted to untrained hands, the mental strain of dividing the attention between the safety of the unconscious patient and the operation itself invites disaster from both sources.

But in spite of this dark side of the question there is such a bright side that it seems a pity we practice it so seldom. Safe respiratory anaesthesia depends solely upon keeping well under the lethal dose for a given patient. That is, *we must not poison our patients*. To produce maximum anaesthesia with a minimum of drug is the desideratum, and it is only by accurate dosage in its highest possible refinement that this can be accomplished. In this we are confronted with the task of delivering an elusive

vapor to our patients in a given quantity. That this is a problem difficult of solution I admit, but being an exceedingly important matter as well as the real solution of safe anæsthesia, it behoves us to work to this end as the expert anæsthetists of human beings are doing. Automatic mechanical measurement of vaporized chloroform or ether and the effectual delivery of a given amount to a patient will make anæsthesia an exact science. Anæsthetists of humans have the matter well in hand by utilizing complicated apparatuses adaptable for their use. Similar apparatuses applicable to animals are needed to bring our respiratory anæsthesia nearer to perfection.

When an operation is short and the patient vigorous, the limit of safety need never be approached, but when the operation is a long-drawn-out affair and the patient sick and weak, the limit of safety is easily exceeded. From the beginning it has been the custom of anæsthetists to gauge the dosage by the reaction of the patient. Little attention was paid to the amount consumed. To-day the amount consumed is being pre-eminently considered, and splendid methods of regulating this amount are being worked out. The uncertainty of depending entirely upon the reaction of the patient needs no comment. Such observations are sometimes misleading. They permit of no fine explanations for the instruction of others, and thus prevent the standardization of methods through which uniform results can be achieved.

That respiratory anæsthesia may be safely entrusted to the student, the inexperienced assistant, or fellow-practitioner is wrong. The successful administration of an inhaled anæsthetic requires a wealth of experience. Of this I am convinced. Respiratory anæsthesia is safe enough when neither profound nor prolonged, and especially when administered to a sound, vigorous subject properly prepared for the ordeal. It is particularly safe when the operation is of such a character as to wield but little influence on the course of the anæsthesia. On the other hand, patients sick with disease of an enfeebling character, requiring an exhausting operation of long duration (one hour

or more) very readily fall victims to badly administered anaesthetics. It is in these cases that the skill of an experienced anaesthetist is needed to carry the patient safely through the operation and to prevent post-anaesthesia complications. Exceptionally sanguinary operations are also dangerous when the anaesthetic is badly administered. When the blood loss reaches the danger point prolonged and profound anaesthesia is exceedingly dangerous. A surgical patient weak from blood loss and saturated with chloroform or ether is always a real hazard.

I therefore divide all patients requiring general anaesthesia into three groups as follows:

*First Group.*—In this group I include all patients which can be safely anaesthetized without any especial skill on the part of the anaesthetist. The operations are of short duration, and the patients are vigorous. Their afflictions have not affected the general health to any appreciable extent, and the operation will not exert much influence upon the anaesthesia. I refer here to neurotomy, tendonotomy, ablation of small growths, castrations, hoof operations and other minor operations too numerous to mention. For such operations respiratory anaesthesia is always better than local or regional, and sometimes it is absolutely necessary to obtain the best results. Accurate work is often impossible under local anaesthesia, because these do not control the struggles against restraint. Intractable horses, vicious horses and nervous dogs are never well controlled with local anaesthesia, and so often local anaesthesia is not complete. For example, in the operation of dividing the tendon in volar flexion the slightest jerk of the leg at a crucial part of the work prevents accuracy, and such disturbing movements are never effectually controlled by any form of anaesthesia except that produced by inhalations of chloroform or ether.

All the operations of this group are of relatively short duration, complete or prolonged relaxation of the musculature is not essential, and the patients are in good health and well prepared. The danger is therefore negligible even when the administration is left to more or less inexperienced hands. The state of



unconsciousness required for these operations is but a transient hypnosis—an anæsthetic veneer—that is seldom dangerous. The painless steps of the operation, such as washing the field, shaving, paring of hoof, etc., are all done before the anæsthetic is administered; then, as soon as the painful part is completed, the patient may already be reviving while the bandages are being applied. In this manner the time of total unconsciousness is very short.

In this group of patients I bring about a state of surgical anæsthesia in a few minutes by forcing the delivery. Sixty to ninety cubic centimeters of chloroform (for horses) is placed in the sponge, which is large enough to hold it all without dripping, the muzzle is anointed with vaseline, and the sponge is held to the nostrils in an air-tight sheet of oilcloth large enough to fold over the head when gathered up. The anæsthetist bears upon the poll and holds the sheet in place by encircling the arms around the nose. By thus holding the nose from the floor or table the head can be well controlled against the struggles which ensue as the administration begins. In from *one to two minutes*, when the struggling ceases and the respirations become soft and more shallow, the sheet is spread out and the administration continued by dropping the chloroform through a towel stretched over the uppermost nostril. The undermost nostril is free from obstruction. In the short minor operation no especial attempt need be made to bring about a very profound state of anæsthesia, as the work is often done before all the reflexes have been banished. When, however, the operation is of longer duration or a relaxation of the musculature is desired, it is safe enough to force the administration to a successful issue by closing the undermost nostril as the chloroform is dropped into the towel on the uppermost one. This is continued until the *corneal reflexes* wane or disappear. It is not safe for the novice to push matters too far at this point. It is better for the inexperienced to err in the direction of too little anæsthesia than to venture too near the danger point. Almost all of the operations of this group can be effectually completed without entirely dispatching



the corneal reflexes. The state of the *respirations* must then be kept under strict surveillance. If regular, everything is well, but when a pumping or jerky state develops, the free admission of air without any chloroform must be insisted upon until the unnatural breathing corrects itself. The shallow inspiration that ends in a sudden collapse of the abdomen is a bad sign, and even the deep inspiration that ends thus must be regarded with a suspicion that the danger point is being approached. I always hesitate to say too much about the corneal reflexes as safeguards against danger because too much dependence cannot be placed upon them. Better to note carefully the story being told by the respirations, and secondly, the pulse, then to depend so much upon the cornea. The cornea gives a fair idea of the state of anaesthesia, but it is never a safeguard against asphyxia or syncope. *Guttural sound* is a cue for the anaesthetist to draw the tongue forward to prevent it from crowding the pharynx. The pulse in this transient and incomplete anaesthesia may be very slow and soft without presaging danger, but when the artery becomes empty and the pulse waves become distinctly separated one from another, the danger point from embarrassment of the heart is near.

To keep within the bounds of safety, the anaesthetist who is inexperienced must be instructed to withhold the anaesthetic, extend the head, draw the tongue forward and leave the nostrils free from obstruction on the very first appearance of any unnatural behavior of the respirations or pulse, even at the risk of annoying the operator; and should the respirations cease entirely artificial respiration must be induced instantly. No time must be lost by giving medicaments, as artificial respiration is most important. The best method of restoring the respiratory function is to press the foot into the abdomen firmly and deeply, but not harshly, at first three times per second, and then oftener if these fail. Care must be taken not to obstruct a spontaneous inspiration that might be taken while these exercises are being done. Simultaneously with these manœuvres, others are engaged in extending the head, withdrawing the tongue, releasing

the restraining ropes, harnesses, belts, etc., and, as soon as possible, the patient should be rolled to the opposite side to prevent blood stasis. A medicinal dose of strychnia may be given hypodermically. Inhalations of ammonia I have found to be harmful. When these means fail in the horse, little else can be done—the patient is dead. In the dog swinging the body to and fro from the hind legs, rubbing and slapping the body is sometimes effectual after artificial expansion of the thorax has failed. Artificially induced respirations come first in resuscitating patients overwhelmed with an inhaled anæsthetic, the others are subordinate. As long as the heart still beats, no matter how feebly, there is still hope of exciting the respirations into activity, but when the heart ceases to beat, I fear we have but little chance to revive our overanæsthetized patients. It is, however, only rare that the heart is the original mischief-maker, and when it is, the patient is at once beyond hope of resuscitation.

When one of these short operations has been completed the restraint apparatus is removed and the patient is allowed to lie stretched out until it will react to the loud clack of a strap across its rump. It can then stagger to its feet with a little assistance, and, after a few uncertain steps, soon regains its equilibrium. Depending upon the duration and depth of the anæsthesia, this is from fifteen to forty minutes after the last bit of anæsthetic was given.

Thus far I have endeavored to show the kind of subjects that can be anæsthetized with safety, and the general plan of administration used in our clinics. With few variations in the apparatus used this is a fair description of the prevailing American customs. In conclusion, I desire to repeat that it requires no especial skill or knowledge not possessed by any veterinarian successfully to handle respiratory anæsthesia in healthy animals when the operation is of short duration. We find that veterinarians who adopt respiratory anæsthesia in the general plan of these minor operations soon use it to the exclusion of all other methods, and, besides, they soon become more proficient surgeons as well as expert anæsthetists.

*Second Group.*—The second group of patients presents the

surgeon with an entirely different problem. In this group we include animals more or less enfeebled by the disease for which the operation is to be performed, and all those afflicted with diseases requiring long, drawn-out, sanguinary operations. Among these are poll-evils, fistulæ of the withers, septic podotrochilitis, carcinoma of the eye, mammæ or penis, actinomycomata, scirrhus cords, large tumors, wounds with visceral complications, thecal abscess of the fetlocks, and others too numerous to mention. In these cases, we miss the aid of the expert anæsthetist. The broadest knowledge of anæsthetic drugs and their remotest behavior in the organism, coupled with skillful handling that can only be learned by wide experience, is absolutely essential to bring these subjects safely through these operations and the post-operative convalescence. It is in these operations that respiratory anæsthesia has proved such a hazard to veterinarians who have practiced it without trained help. In these long operations it is inconvenient unless an anæsthetist in whom the surgeon has implicit confidence is employed. In fact it is so hazardous and inconvenient that veterinarians seek refuge in all sorts of substitutes that only stupefy their patients. But these substitutes are not anæsthetics, they are only subterfuges. They do not answer the purpose of a real anæsthetic from any standpoint, and the only reason they are used is found in the fact that respiratory anæsthesia has been found dangerous in the very class of operations in which it most needed.

Our death-rate from anæsthesia, and during anæsthesia, in the first group of patients has been low, but in this the second group it has varied in strict obedience to the skill displayed in the administration. In our clinics, where a more or less skilled anæsthetist is always available, the mortality is not high—in fact, it is very satisfactory; but when it becomes necessary to operate in the rural districts, where there is no trained help, the death-rate is appalling. An anæsthetist at the Mercy Hospital, Chicago, U. S. A., has anæsthetized 45,000 patients without a single death during anæsthesia, and, while such a record is worthless until it includes the post-operative history of the same patients, it shows that veterinarians are far behind surgeons of human beings in

the handling of respiratory anaesthesia. In animals there are no statistics at hand from which the danger or safety of anaesthetics can be determined. I am, therefore, compelled to report only my own observations, and from these I have learned the lesson I am endeavoring to report—that is the danger of leaving the administration of respiratory anaesthetics for long, serious operations to untrained hands, and the relative safety of leaving it to the very same hands for short, simple operations. In short, the relief from this unfortunate situation which prevents us from resorting to inhalation anaesthesia where it is most needed will be found in the expert anaesthetist. I have always encouraged my students to practice respiratory anaesthesia, soundly condemning all other kinds of general anaesthesia, in order that we might develop more experts among us.

I shall now describe two methods of administering respiratory anaesthetics for serious operations that have proved the safest at my hands.

*First Method.*—An animal about to be submitted to a serious operation is conditioned into as healthy a state as possible by grooming, cleaning, feeding, exercising, etc. The volume of the intestinal contents is reduced by careful feeding, and food is withheld just before the patient goes to the operating table. The stomach should be empty.

As chloroform, although the most effectual drug for all animals, is entirely too toxic to be administered alone through a long operation, we resort to (1) a *preliminary anaesthetic*, (2) the *anaesthetic proper*, and (3) a *terminal anaesthetic*.

As a *preliminary anaesthetic* we administer chloral hydrate *per os*. Thirty to forty grammes dissolved in a litre of hot water is given as a drench one hour before the operation. Chloral given *per os* on an empty stomach gives a fairly uniform action. It is always safe and may be depended upon to do all that is required of a preliminary anaesthetic.

As the *anaesthetic proper*, we administer chloroform with a sponge and a canvas cylinder. The canvas cylinder is 1 foot in diameter and 18 inches long, closed at each end with a tobacco-pouch string. One end is drawn over the nose, drawn

tightly and fastened to the halter to prevent slipping off. Through the other end the sponge containing 30 c.c. of chloroform is placed against the nostrils. If a state of anaesthesia is not promptly produced another 30 c.c. is added to the sponge. The free end of the cylinder is held shut with the tobacco-pouch string or with the hands. As soon as the reflexes are well under control the cylinder is folded back so as to expose the nostrils, and the work of maintaining a satisfactory state of anaesthesia is begun by administering the terminal anaesthetic composed of equal parts of alcohol, chloroform and ether. This is administered through a towel laid over the nostril. The part immediately over the nostril is kept well soaked with the mixture. Air is allowed to pass freely through the undermost nostril. If the patient is obstinate we advise against the second use of the bag, but recommend that the undermost nostril be closed and results patiently awaited from the administration of the mixture through the towel. When an exceptionally profound state of anaesthesia is desired, as, for example, when a deep state of relaxation of the musculature is essential, pure chloroform may from time to time be dropped into the towel instead of the mixture. In this manner we seldom poison a patient by erratic delivery, and while the state of anaesthesia is not as profound as some would desire, it is usually sufficient to enable one to perform almost any veterinary operation. Shock from slight anaesthesia is not common, but when it is possible to block the reflexes by cocainization of a nerve-trunk I advise that this be done. It was Crile (Cleveland, Ohio) who demonstrated that the brain is continually being bombarded with impressions from the seat of the operation in spite of even very profound anaesthesia. If this explains the cause of shock after prolonged operations we, too, should resort to nerve-trunk cocainization whenever the seat of operation is conveniently located. In small animals we use this same general plan, but administer chloroform with much greater care as regards regular and decisive delivery, as these animals are more susceptible to overdosing than the large herbivora. For dogs especial apparatuses are handy but not essential. Ether is more fool-proof in small



animals than chloroform, and should be chosen by inexperienced anæsthetists.

*Second Method.*—The second method of administering respiratory anæsthetics for serious operations is one I shall recommend with great caution, because it has only recently been introduced into our clinics. It is the *endotracheal delivery* which differentiates it from our old plan. The other features are analogous. We administer the preliminary anæsthetic of chloral, and then deliver the anæsthetic proper and the terminal anæsthetic into the trachea with an atomizer. The rubber tube entering the atomizer is attached to a foot-bellows, the bottles containing the anæsthetics are placed into a small wooden box containing also an electric incandescent light to raise the temperature of the liquid, and the delivery tube is placed into the trachea through the uppermost nostril.

The foot bellows agitates the warmed liquid and delivers it vaporized directly into the air passages. We deliver pure chloroform until anæsthesia is produced, then shift the delivery tube to a bottle containing the terminal anæsthetic of alcohol, chloroform and ether, also contained in the wooden box. We have used this crude apparatus with such splendid success that it seems worthy of improvement. Patients fall rapidly and safely into a surgical anæsthesia, and the exact amount of vapor delivered can be determined. There is none lost in the surrounding atmosphere.

The delivery tube can be very easily placed into the trachea in large animals. In small animals the opposition makes the method less inviting; and, as in human beings, it is necessary first to bring about anæsthesia with the face-mask, and then pry the mouth open and deposit the tube. This hindrance leaves it hard to recommend for dogs and cats.

#### FATALITIES AND OTHER UNTOWARD SEQUELÆ.

Serious results from prolonged anæsthesia are due chiefly to oversaturation—the patient is poisoned. If overdosed patients



survive the operating period, they may even die afterwards or produce havoc by falling into a more or less serious state of delirium. *Chloroform* delirium supervenes on long sanguinary operations. The unfortunate subject perspires copiously, rolls its eyes, fights with all-fours and makes futile attempts to rise. If it finally regains the standing posture it lunges forward, presses the head to the wall, and falls about entirely oblivious to its surroundings. These manœuvres are, of course, disastrous to the seat of operation. Ligatures slip off, sutures are torn, and, in fact, general havoc to the wound results. This unfortunate sequel is often the unhappy end of an otherwise splendid operation where accurate dosage is ignored. It occurs in different degrees of severity in strict obedience to the amount of chloroform consumed. Some end fatally, some die from wound complications, while others recover after a few hours, little injured by the ordeal through which they have passed.

*Pneumonia*, I have found, seldom follows chloroformization without some other influence. Embolism and the enfeeblement following the operation are more to be incriminated than the chloroform. When influenza is prevalent there is more danger, but I have never seen it follow chloroform anaesthesia where these added influences do not exist.

*Heart failure* is a rare accident where ordinary care is exercised to avoid susceptible subjects. With me it has occurred chiefly in animals affected with heaves, laryngeal hemiplegia, obesity and senility. An aged fat horse leading an idle life must be anaesthetized guardedly. Reflex syncope in which the amount consumed plays no part has occurred twice in my experience. These two animals (horses) died suddenly at the very beginning of the administration. Both of these animals were fat and lacked vigor.

*Asphyxia* is the usual form of death during anaesthesia. Due either to erratic dosing or to overdosing, the prevention is found in keeping the amount consumed as low as possible, delivering the vapor regularly, and in watching incessantly for unnatural respiratory movements.

I have experimented somewhat with the *intravenous delivery* of both ether and chloroform, but have thus far been unable to bring about a satisfactory state of anæsthesia without endangering the patient's life from overdosing. It is, however, evident that there is still some justification in experimenting further with this method. We need an apparatus that will deliver a regular flow and that will keep the anæsthetic at a uniform temperature. With this provided for we may yet decide upon this method of administering anæsthetics to animals to the exclusion of all others.

#### SUMMARY AND CONCLUSIONS.

(1) For slight anæsthesia suitable for short operations the respiratory delivery is safe even in the hands of untrained anæsthetists.

(2) For the profound anæsthesia required for serious and long operations, respiratory anæsthesia is safe only in the hands of experts.

(3) The most discouraging part of respiratory anæsthesia for animals is the difficulty of regulating the dosage. We need an apparatus to automatically measure the vapor delivered and consumed by the patient.

(4) For profound anæsthesia of considerable duration, the best way to keep within the limits of safety is by administering a preliminary anæsthetic of chloral, followed by chloroform, and then maintain the narcosis with a terminal anæsthetic of alcohol, chloroform and ether.

(5) Despite profound anæsthesia exhaustion of the brain follows serious operations. This may be prevented by blocking with cocaine the nerve trunks which lead from the seat of operation.

(6) The endotracheal delivery of respiratory anæsthetics is worthy of a trial. It is a step in the direction of dose regulation suitable for animals.

(7) Intravenous delivery of ether and chloroform is unsafe with the apparatuses we now have for their administration.

## NEW RESEARCHES ABOUT ROARING IN HORSES.\*

REPORT BY DR. H. A. VERMEULEN, UTRECHT.

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These reseraches have given me the conviction that:

(a) In the horse the thyroid gland can be involved in the process of illness, of which the paralysis of the larynx on the left side is the most obvious symptom.

(b) The nervous diseases which causes the laryngeal hemiplegia in the horse, should it ever be primarily peripheral, does not remain so, but in chronic cases central alterations may be indicated.

(c) The above-mentioned nervous disease is not limited to the left recurrent nerve, but is a proceeding process which attacks the whole motor system.

It is generally known that there are bacterial and chemical toxic substances which attack the nervous system; of these canine madness, lockjaw, diphtheria in man, strychnine and lead are examples, to which many others may be added. It has also been known for a long time past that bacterial and chemical toxic substances may bring about symptoms of degeneration in the left recurrent nerve of the horse, which is followed by paralysis of the larynx on that side. Every veterinary surgeon has experienced that roaring may occur after strangles, and after infectious pleuropneumonia, and in the course of saturnism (chronic lead poisoning).

It is about twenty-five years ago that the first researches concerning the influence of the extirpations of the thyroid gland on the nervous system were published. In 1888 Albertoni and Tizzoni found symptoms of degeneration in the peripheral nervous system after thyroidectomy; later also central alterations have been indicated in such cases by Rogowitch and Stieda. Waller

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\* Reprinted—Tenth International Veterinary Congress, London, 1914.

had seen in 1910 that the process of degeneration and regeneration in bruised nerves has a slower progress in thyroprive rabbits than in normal ones. I have found that in the horse also symptoms of degeneration in peripheral nerves arise after extirpation of the thyroid gland. In my preparations an increase of connective tissue and a winding course of the axones are distinctly perceptible.

In the first place we may conclude that in the horse also the thyroid gland has a physiological influence on nervous organisms.

In the second place I would call attention to the fact that a long time ago in human pathology it was observed that a disturbance of the function of the thyroid gland often remains after certain infectious diseases, and afterwards that alterations in the histological construction of that organ may be found in people who have died of quite different diseases. Roger and Garnier have produced the condition in mammals experimentally, *especially after infection with streptococci; they have found extreme alterations of the microscopic construction of the thyroid gland*. De Quervain and Sarbach observed total degeneration of the thyroid parenchyma in people who had died of infectious diseases and certain forms of pneumonia. The symptoms which may be seen in the microscopic preparations of such thyroid glands are:

(a) Proliferation and disquamation of the epithelium which lines the follicles.

(b) Alteration of the colloid substance and decrease of it. Only in chronic tuberculosis of man an increase of connective tissue may be seen. The same I have found in the cow.

I have seen similar symptoms as de Quervain and others have observed in man in thyroid glands of several kinds of animals,\* in a cow which had died of septic metritis, in another with chronic tuberculosis, in dogs which had had distemper, and also in horses which had suffered from strangles (streptococci infection) or from infectious pleuropneumonia. With respect to the latter I observe that these are the very diseases which often are followed

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\*On examination of a guinea-pig which had died recently in the laboratory of Professor de Jong, from a streptococcic infection, I found the thyroid gland totally destroyed.

by roaring. Finally, I have examined the thyroid glands of twenty-one horses in which the hemiatrophy of the muscles of the larynx on the left side was to be seen in different degrees of development; as for the rest they seemed quite normal. Of three horses the thyroid glands were cystically degenerated; of the others the follicles were for the greater part small; the quantity and also the quality of the colloid substances were frequently altered; the epithelium showed all the symptoms of degeneration—in many of them it had even disappeared in several spots; and the walls of the follicles consisted partly or entirely of connective tissue.

As for the second question, former examiners, Fleming, Thomassen, Günther, junior, and others, have published that in horses with laryngeal hemiplegia symptoms of degeneration can only be indicated in peripheral branches of the vagus; Thomassen especially has energetically asserted that the nervous disease which causes roaring in the horse arises from a peripheral degeneration of the recurrent nerve *which never proceeds in a central direction*. In two cases of chronic laryngeal hemiplegia in the horse I have found a very distinct lesion in the posterior third part of the nucleus ambiguus on the left side from which the left recurrent nerve takes its origin. In one case I found that the quantity of cells of the dorsal motor nucleus of the vagus was considerably less than in normal preparations. If in the latter, in preparations in which the nucleus has reached its largest size, 90 to 100 cells in each of them are found; in the former, in corresponding preparations 60 to 70 cells may be counted.

In the third place I put the principal question: Are only vagal branches attacked by the nervous disease which causes the laryngeal paralysis on the left side in the horse? It must be affirmed that there only has the process of degeneration got such a considerable extension that up to now clinical symptoms only from this side are observed. Nevertheless, I will remark that in very chronic cases clinical symptoms from other sides may often be seen. Several times I have observed in horses which had roared for a long time slight symptoms of paresis of the left facial

nerve, sometimes of the left oculomotor nerve, even in one case of both, and at the same time of the abducent nerve on that side. A few weeks before its death I had occasion to see the famous Oldenburgian stallion Roland, which had roared for at least fifteen years. The horse was suffering from a very complicated general disease of the motor system which had not only extended in the cerebral part, but also in the spinal part of the nervous system. Once I prepared the masticatory muscles on both sides of a roarer; on the left side these muscles were distinctly less developed than on the right. The horse had an irreproachable set of teeth. I mention this because illness of the teeth in old horses often occur and these may be the causes of an atrophy of the masticatory muscles on one or on both sides. Microscopical studies have taught me that in cases of chronic laryngeal hemiplegia in the horse symptoms of degeneration may be found in most bulbar motor nuclei and also in different peripheral nerves. I hope to get a chance to demonstrate this at the Congress with projections made after my preparations.

In my opinion, the paralysis of the left side of the larynx in the horse must be considered the most obvious symptom of an extensive nervous disease which attacks motor nerves and their centres. This nervous disease is an intoxication, in a few cases caused by mineral or vegetable venomous substances, generally by toxic substances produced by bacteria or by autotoxins; the latter get into the circulation of the blood by an insufficient function of the thyroid gland. The fact that among our domestic animals this disease is only found in the horse may be explained by the following circumstances:

(a) This animal can suffer from infectious diseases which never occur in other animals (strangles, infectious pleuropneumonia).

(b) The specific bacteria attack at the same time the parenchyma of the thyroid gland, causing considerable destruction.

(c) In the horse products of metabolism have other characters than in other animals.

(d) In the horse the thyroid gland is often in less favorable



condition than in other animals, as is more elaborately shown by my paper, "Das Kehlkopf-pfeifen beim Pferd," A. Oosthoek, Utrecht, 1914.

The reason that toxic substances exercise their noxious influence in the highest degree on the larynx may be explained by the fact that the muscles of this organ, except one (*musculus crico-thyroideus*) receive their motor nerve-supply from one nerve only, the recurrent vagal nerve. Physiological and anatomical reasons why only on the left side the consequences of this nervous degeneration are so distinctly observed are easily found. The muscles on the left side of the larynx lose their electrical irritability sooner than on the right; if we prepare them accurately on the two sides and we compare them, we often may observe a difference in the development which is always to the disadvantage of the left side. In horses the arterial system of the left side of the neck is also frequently distinctly less developed than on the right. In many cases the thyroid gland in the horse gets its blood from one artery only. Such physiological and anatomical relations may be hereditary; and apart from practical grounds which plead for the possibility of this disease being hereditary, and which are also mentioned in my above-named paper, it is on these considerations that I consider the laryngeal hemiplegia in the horse to be possibly hereditary. Moreover, we must not forget that the left recurrent nerve really makes a longer and a more difficult circuit than the right one, because the left takes its retrograde way around the aorta, while the right turns around the costo-cervical artery.

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DR. BRENTON MEETS TITLED VETERINARIAN FROM EGYPT—While in London, Dr. S. Brenton enjoyed the society of Dr. Jacques E. Aghion, Bey, of Sakha, Egypt. Dr. Aghion, who frequently writes articles for the REVIEW, is veterinarian to the State Domains, and was titled by the Khedive, and privileged thereby to add Bey after his name, a mark of distinction and honor in Egypt. Dr. Brenton enjoyed his visit with him very much.

## WHOLESALE HANDLING OF BOVINE TUBERCULOSIS IN COLORADO.

BY W. W. YARD, STATE VETERINARIAN, DENVER, COLORADO.

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One of the richest men in the State of Colorado, owning and living on one of the finest country homes in the United States, consisting of over six thousand acres of land, has been for four years farming many hundreds of acres, as well as feeding many beef cattle and hogs.

He had built up a herd of Holstein dairy cows of some 700 head, sending about \$210 worth of milk and cream to Denver every day.

About one and one-half years ago he went to Illinois and shipped out, as he supposed, 156 cows for the dairy, all having to pass the T. B. test. While in transit over the railroad, some twenty died, supposedly of pneumonia.

It had been reported to the Board of Health of the city of Denver that some of the dairy herd had tuberculosis, as some of the hired men had seen it in cattle butchered for the farm's consumption. About a year ago the city of Denver quarantined his milk from Denver, but this prince of finance had pull enough to have the city raise the quarantine. As one at a time the cattle kept dying, one of my deputies was called to determine the cause. Two or three post-mortems showed they were dying of tuberculosis so he advised that they all be tested, which was done, and 96 reacted. These were quarantined to be destroyed but after some six weeks the same prince of finance flooded the country with bills of an auction of 1,000 healthy Holstein milk cows, to sprinkle them amongst the poor farmers of not only Colorado, but all over. The auction was advertised for Monday, October 18.

On the Friday before I called on the prince and informed him he could not sell one unless it passed the test made by his veterinarian, who fortunately was one of my deputies.

On Monday I quarantined his cattle and hogs so that the few head that had been sold were all returned under the quarantine and I ordered the 1,000 tested. The first day's temperature showed such a fluctuation that we knew the cattle had been doped so I employed a student of the State Agricultural College and put him over the cattle as a guard for 46 days.

To check up the cattle as each one was numbered by a metal tag in the ear, to see that they were not doped with tuberculin.

In October, 1913, five or six charts were sent to me to file in my office of the cattle which he had shipped, with the cattle. Upon examination of the charts one could tell that they were forged, for out of some 156 head of cattle shipped on one chart there was only 6/10 difference in any one animal before and after inoculation. These temperatures were figured by the President of the State Agricultural College. The owner of these cattle bought them from James Dorsey, of Gilberts, Ill., who guaranteed the cattle to be free of disease and that he would give 60 days for the cattle to be retested in with an agreement that if any reacted the purchaser and seller would stand the loss together, with the result that 156 were tested and 96 reacted. When I examined the cattle after placing the quarantine a number were in pasture, skin and bones, so far gone they lay on the sternum, with neck extended, nose on the ground, eyes closed, dying by inches. Two days later two died and it was found the maxillary glands were full of tuberculosis degeneration, with the *pearly disease* of the intestines.

At the expiration of 46 days I had the cattle separated in bunches 1, 2, 3, 4, 5, 6.

Three dairy barns at a time were cleaned and disinfected and bunches 1, 2, 3 put in them and given the interdermal test. Then these barns were again disinfected and numbers 4, 5, 6 were also tested, all reactors separated and tested under the same conditions with the subcutaneous test. All reactors with both tests were cut out and ordered shipped to the U. S. Inspectors at Denver for autopsy. All suspects were segregated for another 46 days; by this time out of a milk herd of 365 cows there was left 85 suspects and non-reactors.

In order that this firm might not lose all its trade, as the Brown Palace Hotel, the Denver Club, Country Club, etc., due to the city of Denver's Board of Health now having quarantined the milk when I quarantined the whole herd, I was asked if anything could be done so that the milk could be treated and the public health still be protected. I suggested that the milk be pasteurized under the supervision of the guard from the Agricultural College, and this was done until after the retest.

During this time my attention was drawn to about 1,600 hogs, many of which had been allowed to run all over the place after the cattle, so I then quarantined all hogs until they were tuberculin tested.

By this time the second subcutaneous test was due on the suspects and non-reactors which, when the testing was completed of all cattle, I condemned 605 Holstein milk cows, in which every one showed the lesions to such an extent that in many of them the owner had to pay for the tanking—the average reactions being 52 per cent.

After the cow testing was completed and all reactors removed I started the testing of the 1,600 hogs, which resulted in 1,350 reacting, all being sent to be slaughtered under U. S. Inspection, they running 77 per cent. actual condemnations; being a slaughter of \$75,000 worth of stock.

In November, 1913, the U. S. Live Stock Sanitary Association met in Chicago, at which I took all the fraudulent charts, with the charts of tests of 1,004 head, made under my orders and the U. S. Government post-mortem findings of 605 head ordered killed. This was reported to the State of Illinois and a handwriting expert swore that all the charts were temperatures filled in by one handwriting and signed by another. Upon my return to Colorado I quarantined all dairy type and breeding cattle from Illinois except those tested under Dr. O. E. Dyson, State Veterinarian.

About November 30, 1913, I quarantined 52 head of Dorsey cattle at Meeker, Colorado, and upon test found 14 reactors. At

La Veta, Colorado, 8 were found out of 24 head as reactors; all shipped to Denver or Pueblo on U. S. post-mortem.

I have been on the lookout ever since, and on August 22 found 110 head of Holsteins in the northern part of the state very suspicious, from Ohio, in which they are supposed to be tested, but one has died in the last week, rotten with tuberculosis, which is supposed to have passed the test. They will be tested when the 42 days are up, but whether I am the State Veterinarian of Colorado or not the fight against tuberculous cattle and use of virus will go on, as I can expose those who have them and any sanitary officer who fails to do his duty.

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DR. S. J. WALKLEY.—That the executive board of the National Association Bureau of Animal Industry employees acted wisely at their St. Louis meeting in voting to send Dr. S. J. Walkeley to Washington, D. C., was evidenced in a remark made by Congressman Lobeck when he recently addressed a meeting of B. A. I. employees at South Omaha, Neb. He stated that Dr. Walkley was the personification of consistency, and complimented our organization on having so able a gentleman to champion our cause at the capitol. At the hearings before the committee on agriculture on the Lobeck Bill, H. R. 9292, Walkley took a prominent part. He made it clear to the committee that the bill is not intended to effect the employees of the meat inspection forces exclusively, but includes the forces engaged in meat inspection, quarantine division, field inspection, animal husbandry, dairying, export and import inspection, eradication of hog cholera, dourine, glanders, Texas fever tick, sheep scab, cattle mange, tuberculin testing—in fact, any employee in the United States Bureau of Animal Industry whose designation corresponds to those mentioned in this bill. Dr. Walkley has worked incessantly for all classes of employees and has never shown favor to any particular class. The delegates at the Denver convention should re-elect him to the position he has filled so well during the last year. He is the right man to again go to Washington—he is thoroughly familiar with the situation—has gained a large acquaintance among the congressmen and senators, and if he will consent to become our national secretary for another year, there should not be a dissenting vote against him.—(*The Inspector.*)



## VASOCCCLUSION: A PROMISING NEW METHOD OF ANIMAL STERILIZATION.

BY O. W. BARRETT, PHILIPPINE BUREAU OF AGRICULTURE.

For some five years the veterinarians and live-stock raisers of the world have been more or less interested in the possibilities of improved methods of castration. Vasectomy was for a time thought to be a solution of the difficulties with the old orchotomy practice, which, in tropical countries, is always a rather dangerous operation.

After vasectomy came vaso-ligation—a single or double tying of the vas deferens—and this operation has many advantages; however, both the bisection and the ligation of the vas necessitate the opening of the scrotum, always a serious risk wherever wound-infesting maggots and tetanus are in evidence. The old "bistournage," or double-turning method, which is still practiced to a limited extent on rams and bulls, avoided the traumatic troubles (if the operator made a lucky "tie-up"), but was too tedious and even less humane than any of the others.

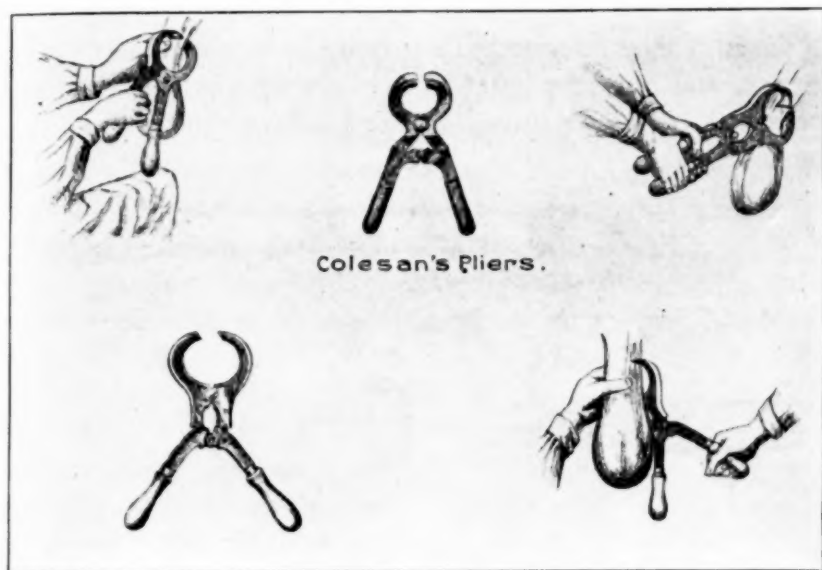
Then, a year or two ago, sterilization without castration was heralded as a highly scientific way of heading off Nature in the primal purpose struggle; the French found that cats and dogs could, under laboratory conditions, be rendered sterile, at least temporarily, by either the X-rays or radium emanations. We shall hear more of this discovery, and it may eventually become of the greatest importance in solving some of the world's gravest "social problems"; at present, however, the stockmen are not directly interested, for obvious reasons.

Finally, the new method, for which the writer proposes the term *vasocclusion*, has come as the simplest, cheapest and least dangerous method of all. It appears that Dr. Napoléon Berdozzi, of Italy, first made it public. Although little or nothing seems to have been done, even experimentally, with it in America, it is coming into use in Europe, and even in Costa Rica Dr. Sylvio has carried out the whole idea on a perfectly practical



basis and published some very interesting notes on the technique.\*

The operation consists in occluding the vas by strong pressure with a special pliers, or forceps, having double action, wide-mouth jaws. The "cord" is simply crushed *from the outside*. For greater surety, Dr. Sylvio occludes the vas in two places—



first close to the testicle and again as high as convenient; obviously, however, the higher occlusion should be made *first*. About six weeks are required for complete absorption of the gland. Dr. Sylvio has no difficulty in applying this method to bulls, rams, bucks, stallions, deer, dogs and even pigs, always with perfect success.

Veterinarians can take advantage of this method to render draft animals sterile without desexing them, by leaving the blood vessels intact and occluding only the vas itself the gland would still be able to supply the undoubtedly beneficial alexins, secretins, hormones, etc., to the blood stream, thus rendering the animal more resistant to diseases as well as healthier and stronger.

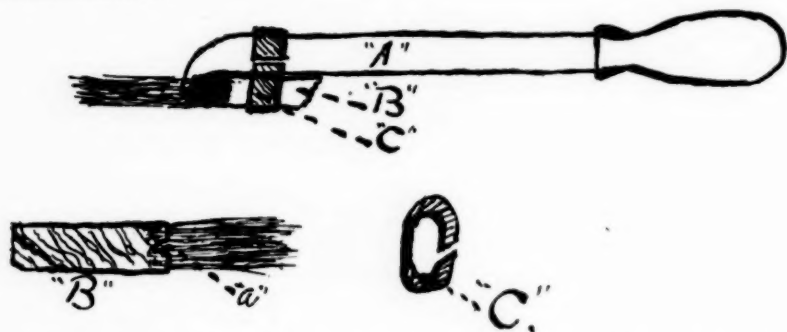
\* Boletín de Fomento, No. 5 (1913); San José, Costa Rica; pp. 345-352.

## AN OPHTHALMIC MALLEIN EYE DROPPER.

By WILLIS WILSON, D.V.S., DAYTON, WASH.

A small and inexpensive bit of equipment which will be found indispensable to the man who has a considerable amount of ophthalmic mallein testing to do.

By filling the dropper with mallein, which easily holds 10 to 20 doses, it may be squeezed out into the brush and placed into the eye, and any remaining in the dropper after the testing is completed may be returned to the bottle without being badly contaminated.



"A"—Ordinary medicine dropper with the point drawn out and bent at right angles.

"B"—Camel's-hair brush with a part of the quill cut off and a notch made in the end next the hair "a" for receiving the point of the dropper.

"C"—A small band best made from thin sheet copper about  $\frac{1}{4}$  inch wide and bent around the dropper and quill of the brush. The opposing ends should not quite meet when the band is in place, which allows for its being squeezed together while it is off and will thus be made to fit quite snugly and act as a spring.

This apparatus can be made in 20 minutes by any man of ordinary ingenuity with the aid of an alcohol lamp and a pair of tweezers.

Its advantages over either the dropper or the camel's-hair brush are at once obvious.

## DISTEMPER—ETIOLOGY AND VACCINATION.\*

By H. CARRE, CHIEF OF RESEARCH SERVICE ON INFECTIOUS DISEASE, ALFORT VETERINARY SCHOOL.

### Summary of Report by H. Carrié.

Much still remains to be done in connection with solving the problem of the causation of distemper in dogs and the diseases which may be confounded with it upon clinical grounds. If the filterable virus is an established fact and beyond dispute (Carré, Lignières and Eiguène), it is nevertheless true that precise information is still required regarding the exact part played by it in the causation of the various lesions observed during the course of the disease. The specific nature of the *Bacillus bronchisepticus*, of Ferry and Torrey, is by no means established. The harmlessness of cultures when inoculated subcutaneously, the methods resorted to in order to produce the natural (?) form of disease, etc., warrant grave doubts being cast upon this organism as being the cause of a disease which is exceedingly contagious. The method of vaccinating by cultures of *B. bronchisepticus* does not appear to rest upon a very firm basis. Judgment is suspended until the results obtained by other authors are available. We may observe that we have been unable to find an organism corresponding to that described by Ferry and Torrey in seven dogs suffering from distemper.

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DR. SHEPARD MAKES TRIP THROUGH SCOTLAND AFTER CLOSE OF LONDON CONGRESS—Dr. E. H. Shepard, Cleveland, Ohio, finished out the trip as scheduled, going to Edinburg and Glasgow, Scotland, and Manchester and Liverpool, and sailing from the Thames, coming home, came within 30 feet of striking a floating mine in the channel. It is comforting to get the assurance from the doctor that he "missed it" and is safe at home.

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\* Reprinted—Tenth International Veterinary Congress, London, 1914.

## LAMINITIS.\*

BY M. LIENAU, PROFESSOR AT THE SCHOOL OF VETERINARY MEDICINE,  
CUREGHEM, BRUSSELS.

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### Summary of report by Professor Lienaux.

Laminitis, of which no one has as yet given a satisfactory definition, should be considered as a syndrome rather than a disease. The most characteristic lesions indicate different diseases: Chronic congestion and hypertrophy of the sensitive laminae, ostitis of the os pedis. The commonest symptoms of bilateral laminitis may be observed in a number of different diseases: Congestion and hypertrophy of the sensitive laminae, ostitis of the third phalanx in its various forms (superficial and deep, and in its final localization on the semilunar crest or the navicular bone), when these diseases affect both limbs and is very acute. The detailed description of each of these conditions would show that laminitis is in the nature of a syndrome, and the differential characters for each case would be indicated. Thus, the resting of the foot on the toe (podophyllitis, ostitis of the quarters, of the semilunar crest or of the navicular bone) or on the heels (podophyllitis and ostitis of the toe portion of the bone) or flat (when the lesions involve the whole foot to the same extent).

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NEW YORK COLLEGE OF VETERINARY SURGEONS' GRADUATE DIES IN CALIFORNIA—Dr. A. R. Wiley, graduate of the New York College of Veterinary Surgeons, class of 1893, died at Corina, California, on September 11, 1914. Dr. Wiley was formerly veterinarian to the New Jersey Bovine Tuberculosis Commission, and for the past five years has been practicing at Corina, in Southern California. He was stricken with apoplexy on September 11, and died at the expiration of thirteen hours without regaining consciousness. He leaves a widow.

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\* Reprinted—Tenth International Veterinary Congress, London, 1914.

## REPORTS OF CASES.

### SOME INTERESTING CASES.

By FRANCIS ABELE, JR., Quincy, Mass.

#### WRY NECK.

(1) An article on "wry neck" in the *Chicago Veterinary College Quarterly Bulletin* for September, 1914, is very interesting, especially his treatment recommended by another doctor. The wry neck had been treated by straps holding horse against side of stall, and recovery as taking 3 to 6 weeks.

I recall a baker's horse, got cast, could not get up without use of slings and when up horse showed wry neck, as described. By pushing head to other side, the "kink" would straighten out. His halter rope was tied to one side of stall, his neck, back of poll to the other and a rope from one end to other on same side of stall held him quite firmly to side of same. He ate from a barrel, seemed comfortable at once and inside of one week's time was back at work.

Another case, a chestnut mare was turned out in small yard of 3 strands plain wire fence. She got colicky, down, with head under wire, neck showed swollen on one side, took medicine, got over abdominal cramps, trotted up to barn, set to eating.

Three days later she was down unable to rise, comatose. Placed in sling, her neck kinked one way of turning, but straightened when passed to the other side. Post mortem showed extravasation of a large pocket of clotted blood between the cervical muscles; several articular facets were broken. I wish to show here how dangerous it is to prognose on these cases. The one that seemed harmless, died. The one that looked serious, recovered speedily.

#### INJURED SPINES IN DOGS.

Very interesting studies could be made in fractured spines in dogs from most city practices. Here again diagnoses and prognoses often need a second guess. A dog may after a week or even 2 weeks' paralysis recover use of hind parts, others never do. Of course we seldom see the post mortems on those that recover. They would be the most interesting. A dog with a

22-calibre slug through spinal canal of 2 vertebrae, seemed bright and cheerful, dragged his hind parts about unconcernedly. The hole was so small that owners had not noticed it.

#### GLANDERS—A POINT OF LAW.

(2) One Jew bought a horse from another Jew on a Sunday afternoon about 5 p. m. Monday morning at 9 a. m. during the veterinarian's office hours he brought horse for examination. Horse was reported quarantined and killed by the state for glanders. Dealer refused to return cost of horse. Case taken to Superior Court and judge ruled that sale was not a lawful sale, hence law could not recover for buyer. This seems to imply that on Sundays a glandered horse can be sold with impunity in Massachusetts.

#### FRACTURE MANIFEST AFTER THREE DAYS.

(3) A market gardener took produce to market, put up horse in livery stable. All stalls were full. Horse stood in floor with others. When leaving, owner saw blood streaming from a wound on inside of thigh, called attention of livery man who claimed it was of no moment, and had stableman wash it. Told owner to take it along and work it. Three days later horse laid down, could not rise, sent for veterinarian. Complete fracture with dangling leg. Veterinarian recommended lawyer notify stableman. A week later saw horse in slings, leg dangling and bone protruding. Lawyer had not acted as yet. Should have said that first wound and later fracture were at one and the same spot.

#### ANOTHER MANIFEST IN FIVE DAYS.

A fire horse was kicked by another horse, bathed and exercised by self-ordained stable veterinarian. After about 5 days horse lay down, could not rise or be raised by local talent. A veterinarian called, raised foot almost to horse's back to convince those interested.

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#### ENTERITIS IN A MONKEY.

By CRITTENDEN ROSS, D.V.M., New York, N. Y.

Was called to see a monkey which had been taken suddenly sick, and after the usual line of inquiry the following anamnesis was secured: The animal had been quite well on the previous



day (*i. e.*, he did not evidence any pain, and was in his usual spirits); he would attempt to eat anything offered him and had been fed some new corn by children playing with him. When the family arose in the morning they did not, as usual, find any feces about, and the little fellow showed signs of intense pain. Enteritis was diagnosed, and an enema of warm water and soapsuds was given, which was followed by the expulsion of hard balls of feces. A mild laxative was administered, and a hot-water bottle applied to the abdomen. Two and one-half hours later I called to see the patient, taking a stomach tube in order to give a high enema; this time he appeared much weaker, heart very rapid, and respirations fast and labored; there was some evidence of attempts at vomiting; the stomach tube was passed and effort made to evacuate the stomach, which was only partly successful. Another enema was given, but the animal died in a short time.

POST MORTEM revealed an intense inflammation of the bowel, which was most marked in the small colon; the mesenteric arteries were congested and a portion of the wall of the small colon was much thickened and showed signs of necrosis.

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## STRUCTURAL CHANGES RESULTING FROM OUTWARD DISLOCATION OF PATELLA IN A PUPPY.

By the Same.

It having been my privilege to have under observation an eight-month-old puppy affected with an outward dislocation of the patella existing since early puppyhood, I became curious to learn the structural changes resulting from the same. I later was granted, upon its death, the privilege of holding the post-mortem examination, which revealed the following: The femur had a distinct curve extending from the proximal third to the distal extremity, the patella was freely movable on the external surface of the femur, *i. e.*, laterally; the internal lateral femoropatellar ligament was not distinguishable; the articular surface on the distal extremity of the femur was only about two-thirds the size of that of the opposite limb; the groove at the distal extremity of the femur was scarcely noticeable as compared with that of the opposite femur; the anterior femoral group of muscles much atrophied. During the autopsy it was noticed that this puppy was a monorchid, the retained testicle corresponding to the side of the injured limb.

### A THREE-LEGGED CALF.

By J. B. L. TERRELL, D.V.M., Dresden, Tenn.

I enclose photograph of a three-legged calf taken when four days old.

The left limb is entirely wanting; no scapula. It is a fully developed calf in every other respect.



This little bovine female has six teats, all the same size. She is now six weeks old.

**DR. DUNPHY HIT BY AUTO**—Dr. G. W. Dunphy, State Veterinarian of Michigan, known to every member of the A. V. M. A., had just parted from his old friend, Dr. Brenton, in Detroit, on September 11, when he was hit by an automobile at Michigan and Woodward avenues, and knocked down. The doctor received no serious injuries, but was painfully bruised and confined to his bed for more than a week. The profession extends its sympathy to the good doctor for the pain he has had to endure, and congratulates him on the fact that it was not serious.

**SEVENTY-FIVE THOUSAND DOLLARS WORTH OF STOCK DESTROYED ON ONE FARM**—Dr. W. W. Yard, State Veterinarian of Colorado, recently destroyed \$75,000 worth of stock, with tuberculosis, belonging to one man.

## ABSTRACTS FROM EXCHANGES.

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### ENGLISH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

HEPATIC AND SPLENIC SARCOMA IN DOG [*W. W. Henderson, M.R.C.V.S., D.V.S.M.*].—Small sized airedale terrier dog had distension of the abdomen, which made it suspicious of ascitis, but on palpation revealed a great enlargement of the abdomen due to a firm mass, a large tumor. The mucous membranes were yellow, the dog had constipation, was weak and in emaciated condition which made the pendulous aspect of the abdomen more evident. The dog had been ailing for months and often put under treatment. Prognosis being very serious, the dog was condemned. As he was chloroformed the abdomen was opened and a large amount of fluid escaped. The spleen was exposed, enormously enlarged and nodulated. The liver was also enlarged. It weighed  $6\frac{1}{4}$  pounds, the spleen 2 pounds. The omentum was covered with myriads of small tumor-like bodies. The neoplasms examined with the microscope proved to be mixed celled sarcomas.—(*Vet. Record.*)

HYSTERIA IN A MARE [*D Keir*].—Twelve-year-old hackney mare had her fifth foal. She was again served by the sire of the previous foals. The act went on satisfactorily. She was to be presented to the stallion the next morning, when she was found ailing. She was very uneasy and apparently in great pain. The head was stretched out and the tail highly elevated. All the muscles of the body were hard and tense and contracted with the least excitement. She ground her teeth persistently and salivated abundantly. Examination of the vagina revealed congested condition and the vulva was opening and closing as if there was a constant desire to urinate. Now and again a small quantity of urine was ejected. Pulse quick and irritable. The mare was put in a dark box with her foal, was given plenty of water, received no medicine, but left quiet. The symptoms gradually subsided and finally the mare was all right. The mother of this mare had similar symptoms two years before being served by the same horse.—(*Ibid.*)

FATAL POISONING BY EXTERNAL APPLICATION OF OIL OF TAR [*Ralph Bennett, F.R.C.V.S.*].—Eight-year pony had two or three bare spots on the skin. Fearing it might be mange it was decided to dress the animal all over with train oil. Instead of that, by error, oil of tar was used, about three pints in all. One hour after, the pony is in great pain, blowing badly, fell down and remained unable to rise again. He laid on his side, his four limbs stretched out and quite rigid, the jaws were tightly clenched, pulse imperceptible, there were twitchings of the muscles of the trunk, consciousness was quite lost, no corneal reflex. Free washing of the whole body with soap and water, douching with cold water, emollients to the skin, stimulants, all failed. The pony died.—(*Ibid.*)

URINARY SABULOUS DEPOSIT AND CATHETERIZATION IN THE CAT [*G. O. Rushie Gray, M.R.C.V.S., B.Sc.*].—Continuing remarks made by him on the same subject, the author records three interesting cases of cats which he treated—a Persian castrated male, another nine months old and an entire cat of three years. Besides the description of the symptoms and that of the treatment for the relief of these three animals, the author calls attention to the fact that in the first case he had to remove the obstructing material from the urethra as a kind of cylindrical casts, practically occupying the whole length of the canal. The second case brings out the fact that the age of the cat shows that the trouble is not peculiar to old animals, that in flushing the bladder with water not too much fluid must be introduced. In the third case, the author remarks that the subject was entire, with fully developed testicles, hence the error in saying that such urinary deposits do not occur in entire animals.—(*Vet. News.*)

PYRO-THERAPY IN CANINE PRACTICE [*By the Same*].—Remarks on the use of actual cautery in canine practice with mention of two cases of hip-joint disease in dogs which were successfully treated. The animals had been in great pain, were unable to put the foot on the ground, crying when the limb was manipulated, wasting of the hind quarters were characteristics. Both dogs were young adult, one a pet the other a sporting dog. After being kept under observation for a long time and unsuccessful anti-rheumatic treatment, firing was resorted to. After anesthesia of the parts, four or five punctures about 1 inch apart were made around the hip joint, the point of the iron penetrating until it reached the bone. Iodine was poured over the wounds

daily. They suppurated, granulated and after four days improvement was noticed followed by complete recovery after eight weeks.—(*Vet. News.*)

TREATMENT WITH AUTOGENOUS VACCINE [*R. T. Stirling, M.R.C.V.S.*].—Half-bred shorthorn cow picks up a nail with her foot; is quite lame. After a few days of simple treatment the leg is much swollen, and after a fortnight there are several suppurating openings at various points around the coronet. A probe introduced in same reaches the os pedis. A sample of pus is taken and sent to Research Laboratory, when in four days "six 1 c.c. phials of autogenous vaccine are returned—each phial containing 3,000 million organisms, being 1,000 of each of the three organisms isolated, viz.: *Staphylococcus pyogenis aureus*, a micrococcus of the *M. catharratis* type and a diphtheroid bacillus." Injections of  $\frac{1}{2}$  c.c., 1 c.c. were made, five in number, beginning the last day of May and on April 10 all dressings were unnecessary.—(*Vet. Journal.*)

INTERESTING PARTIAL HYSTERECTOMY [*George Elmes, F.R.C.V.S.*].—Small Pekingese bitch,  $2\frac{1}{2}$  years, at the time of whelping is uneasy. 1 c.c. pituitrin is injected, followed by another 30 minutes after. A dead puppy was delivered. One hour later another 1 c.c. is injected, and another puppy, apparently dead, is removed. He is dropped into a toilet pail containing cold water, revives, moves, gets artificial respiration and lived five weeks. Still another pup is felt through the abdominal wall. Three injections of 1 c.c. of pituitrin were given without signs of labor. An operation is decided. The bitch put to sleep. The left horn as far as the junction with the body of the uterus and the left ovary were removed. The puppy was in a putrid condition. Recovery was uneventful, except that the skin wound did not heal by first intention.—(*Ibid.*)

CUTLET BONE DEMONSTRATED IN SITU BY SKIAGRAM [*Guy Sutton, F.R.C.V.S.*].—Young West Highland terrier got the bone of a lamb's cutlet. Forty-eight hours after he vomits, seems uncomfortable and takes only milk. Bismuth is given in powder and ice to lick. Visited again, he is called, ran quite brightly, then stood still and made three or four steps in a perfectly straight line.

The history of the lamb's cutlet being brought out, small shreds of raw meat are given and well taken. Skiagram is then

taken and a large portion of the bone wedged in the oesophagus, immediately over the heart, is detected. Rubber tubing as probang was used, but the bone could not be displaced. Unsuccessful attempts to promote and obtain vomiting, the dog was destroyed.—(*Vet. Journal.*)

BILATERAL LUXATION OF THE LENS IN A DOG [*G. O. Rushie Grey, M.R.C.V.S.*].—Referring to the case alluded to in August last, the author describes the operation and the results obtained in the case. After careful preparation of asepsy of the instruments, the animal was put to sleep with morphine and chloroform and the operation performed on one eye with a von Graefe's instrument. After the incision, the lens was extracted, the eye well cleaned with boiled water, the eyelids brought together and maintained closed with one suture. This was removed the next day. The divided edges of the cornea had healed and the anterior chamber refilled. The suture of eyelids was reapplied and permanently removed on the third day. A dense opacity spread over the whole cornea, which did not subside except gradually with some little time. The dog which had been totally blind in both eyes, could see a little out of the one operated. The other eye was then operated and treated in the same way with the same results, the animal being able now to move without much inconvenience.—(*Vet. News.*)

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## FRENCH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

PARESIA OF FORELEGS FOLLOWS HEMOGLOBINURIA [*Mr. Letard*].—A Percheron stallion is taken with hemoglobinuria. The symptoms are characteristic and no error of diagnosis is possible. After proper treatment the horse the next day seems in perfect health. His temperature is normal, his appetite is good. But as he is taken out of his stall he manifests peculiar symptoms. His walk is such that the impression is that he has laminitis. Making him go forward he flexes the foot upon either fetlock, but more so on the left, pointing the fetlock forward to such an extent that it nearly touches the ground, as it happens in radial paralysis. Feeling his inability to rest on his plantar faces he raises his anterior legs alternatively, but even then seems unable to rest his foot on the ground and he stumbles.



threatened with a fall. These symptoms lasted for four days. They subsided on the off foreleg, which then recovered its normal function. The near leg remained affected longer, only the 11th day did the symptoms pass away. Work was resumed on the 15th day from the attack.—(*Bullet. de la Soc. Centrale.*)

FATAL COPROSTASIS IN A DOG [*Prof. G. Petit and Brune, Student*].—Seven-year-old dog is taken suddenly with obstinate constipation, which remained rebellious to all treatment. He has lost flesh and coat is staring, the eyes sunk in the orbits and by abdominal palpation the hard cylindroid mass, characteristic of coprostasis is readily detected. Previous to operating, castor and olive oil in equal parts are given in teaspoonful doses, morning and evening, with repeated tepid glycerine rectal injections. No result is obtained—only one very small passage of putrid hard feces taking place in two weeks. Death takes place before the dog could be operated. *Post-mortem.* Congestion of the omentum, intestines dilated with gases. The large intestine, with the coecum, from the ileum to the rectum is enormously distended, and contains matter of stoney consistency mixed with hairs. It weighs 3 kilogs. 599—and measures 11 centim. in diameter, while normally it is only 4 centimeters. All the other organs are healthy. There is no hypertrophy of the prostate.—(*Bullet. de la Soc. Cent.*)

TUBERCULOSIS OF THE MYOCARDIUM IN A CALF [*Mr. Ballon, Veterinary Director*].—Case observed at the abattoir in a male calf, scarcely two months old. He had generalized tuberculosis, with lesions in the bronchic, mediastine, left prescapular, hepatic and mesenteric lymph glands. The lungs, liver and kidneys were clear of lesions; there were three caseo-calcareous tubercles in the spleen. The heart, at its point, and in the thickness of the left ventricle wall, presented a whitish surface which looked like a lesion of measles. On section of the myocardium there was a tumor enclosed in the thickness of the muscular structure. The microscopic examination of the scrapings from this tumor, whose macroscopic appearance left no doubt as to its nature, revealed the presence of some acido-resisting bacilli and some of the caseo-calcareous tubercles inoculated to guinea pigs after trituration in sterilized water, gave rise to tuberculosis in due time. The other parenchymatous tissues were free from apparent lesions. It was a marked case of tuberculosis of the myocardium.—(*Bullet. de la Soc. Cent.*)

EVERSION OF THE BLADDER IN MARES [*Mr. Clement Therriot*].—The author has observed this accident four times—in the first he reduced the prolapsus with difficulty, in two others he was called too late, the bladder was ruptured, with in one, prolapsus intestinal. In the fourth, it was to deliver a mare in which the reversed bladder formed a tumor as big as the head of a man, filling the vulvar opening and supported anteriorly by a penduncle as big as the fist. The foetus was delivered. But to reduce the bladder was difficult. In feeling it, feces were revealed through the walls of the organ, showing that the case was one of intestinal hernia with the bladder being the hernial sac. After pushing the vesical tumor back in the vagina, the faecal balls were squeezed in the anterior peduncular and the sac was empty leaving the bladder flabby and scarcely bigger than the fist. It was easily pushed back in its place, cleaned with warm salted water and the uterus washed with peroxide solution. But during the accouchement the mare had vomited and rejected food through the nose, she had a rupture of the stomach due to the violent abdominal contractions during labor. She died after a few hours.—(*Rev. Gen. de Med. Vet.*)

TUBERCULOSIS OF THE BRAIN AND SPINAL CORD [*Ch. Perard, Sanitary Veterinarian*].—At the arrival of the truck that brought her to the abattoir, an eighteen-months-old heifer in good condition, is found lying down unable to get up. After being killed a fracture or muscular rupture were looked for to explain her condition. There were none—but the visceras and annexed lymph glands were found with caseo-calcareous lesions in the lungs, liver and mesenteric glands. In examining the vertebral column there was found on a level with the sixth cervical vertebra, a hard tumor, within the spinal cord. This presented a rounded swelling as big as a nut, which on section presented all the macroscopic characters of bovine tuberculosis. In the cerebrum, which was asymmetrical and irregularly bosselated, there was found that the right hemisphere was bigger than the left and contained three big tumors, one situated in the anterior portion and the others in the posterior. These were also tuberculous. In the left hemisphere there was a small lesion of same nature.—(*Hygien. de la Viande et du Lait.*)

A SINGLE KIDNEY IN A CALF [*Mr. Gautier, Veterinary Director*].—This anomaly was found in a six-months-old calf, weighing 72 kilogs. This single kidney was situated on a level

with the sacrum. It had the shape of a horseshoe, with the branches turned forward, the biggest convexity of the organ corresponding to the toe being on a level with the origin of the iliac arteries. The kidney was lobulated, weighing 300 grammes and was as big as a fist. There was no external fissure which would indicate that it was two kidneys united by one of their extremities. There was but one renal artery rising from the aorta, three centimeters in front of the bifurcation of the iliacs. There was but one vein and one ureter.—(*Hyg. de la Viande et du Lait.*)

DEEP PUNCTURE OF THE FOOT IN A COLT—SUPPURATIVE ARTHRITIS—RECOVERY BY BIER'S METHOD [*L. A. Bichot*].—A six-weeks-old colt had a deep wound on one foot, made by one sharp tooth of an American fork. A probe introduced into the tract revealed a fistula between the wall and the os pedis. A few moist dressings were applied without results and an operation has to be performed. The caries of the os pedis was curetted, the fistula freely open, its bottom showed a big greyish granulation of bad appearance. This was carefully excised and then there escaped purulent synovia from the second phalangeal articulation. Bier's method was then resorted to: a rubber cord was applied in the middle of the canon, a compressive dressing with tincture of iodine and boric acid was applied. The rubber cord was taken off, morning and evening, for one hour. The dressing was changed every week. Recovery was complete after a month.—(*Rec. de Med. Vet.*)

FOOD ENTERED IN THE GALL BLADDER, DUE TO CANCER OF THE DUODENUM [*L. Marabail*].—Fifteen-year-old cow in good condition becomes suddenly ill. She has digestive troubles. Loss of appetite, no rumination, no defecation, 40 degrees 7 C. temperature. She has no colics nor tympanitis. Pressure on the right side gives rise to pain. Acute enteritis is diagnosed and treatment prescribed. After three days the animal has improved and apparently recovered after a week. A month later the same symptoms returned. The cow died during the night.

*Post-mortem.* Intestines empty. No acute enteritis is present. Liver is hypertrophied and yellowish. Gall bladder is very large and when it is open shows about two pounds of alimentary matters packed in. Round the duodenum there are five or six tumors as big as a hen's egg, they are lymphadenoma. Round them the intestine is thickened and contracted, measuring about

five or six millimeters only in diameter. Above this contraction the intestine is filled with food, which had accumulated and made its way in the biliary duct and into the gall bladder.—*Rev. Veterin.*)

## BELGIAN REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

ELASTIC LIGATURES ON SMALL ANIMALS [*Mr. P. Stappers, fourth year student*].—A shepherd dog had two elastic ligatures round the lower jaw, back of the canine teeth. They gave rise to a circular wound which required free incision of the skin to permit them to be removed. The bone itself was undergoing necrosis. Cauterization with tinct. of iodine helped the cicatrization.

A small street dog with thick long hair had on the middle of the left swollen forearm a running fistulous sore which did not heal. An elastic ligature covered by the hairs was found, explaining the swelling, but not the discharge or the fistula. Incision of the skin exposed a small loop of fine wire which surrounded the bones of the forearm. It had cut through the skin first, and as its action stopped the cutaneous cicatrization, had taken place over it and there was left but a fistulous tract. The foreign body removed, the wound was dressed antiseptically and recovery followed.

A loulou dog had two rubber rings round two of his claws. They had to be amputated.

A lame kitten had a swelling on the forearm, where is a circular cicatrix. Incision of the skin over this exposed an elastic ring easily removed. Kitten gets well rapidly.

These, with a few more with similar conditions, are reported to illustrate the bad effects that may follow improper or unknown application of means of constriction, specially of elastic nature on small animals.—(*Annales de Bruxelles.*)

INTESTINAL PERFORATION BY BONE IN A DOG [*Prof. Rubay and Adjunct. Van Goidsenhoven*].—After some remarks upon the feeding of dogs, in which bones, entire or in small pieces, are mixed, and upon the accidents that may follow, the authors recall that of a pointer of great value, which had died suddenly and of which they were called to make the autopsy. They found

lesions of generalized infectious peritonitis, with sanious, chocolate effusion, having offensive odor, and about 2 litres in quantity.

Two centimeters from the end of the ileum there was a hole in which a piece of bone was engaged. The bone was like an articular head, irregularly triangular and sharp on its edges. Opposite the hole there was another one smaller. The history was that while in the country where he was trained, his diet consisted of brown bread, meat biscuits and water. When he was brought home a similar meal was given, made of kitchen remains, and the day after the dog was taken sick. It was at that meal that the piece of bone had been swallowed.—(*Ibidem.*)

MASTER HORSE SHOERS NATIONAL PROTECTIVE ASSOCIATION OF AMERICA.—From all parts of the United States, the master horse shoers gathered in New York City for the week beginning September 14th, making the Hotel Martinique their headquarters and meeting place. Their organization is now 22 years old, having been organized in Cleveland, Ohio, in July, 1902. Seven men were present at the organization, and their membership is now something less than seven hundred. A fine, hearty, whole-souled lot of men, who have learned the advantages of organization, exchange of ideas and good fellowship. On the evening of September 16th a banquet and dance was given to the organization at the Martinique by "The Nutmegs," the local organization of Brooklyn, N. Y., at which the wives and daughters of the members were present. Mr. Wm. J. Kent (manager of the New York branch of the Revere Rubber Company, manufacturers of the Air Cushion Horse Shoe Pad), acted as toastmaster, and was fully master of the situation. In addition to addresses by the members, there was some excellent singing by some of the daughters, which proves conclusively that the music of the anvil can be transmitted to the offspring. Altogether it was a very enjoyable affair.

HAS SECURED THE REVIEW FOR TWO YEARS IN ADVANCE—Dr. J. G. Forsyth, Duluth, Minn., says in renewing his subscription: "Enclosed find check for \$6, being two years' subscription for your valuable journal. I could not get along without it and take opportunity of securing it for the next two years; hoping that long life and continued prosperity follow you in your good work."



## CORRESPONDENCE.

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### EUROPEAN IMPRESSIONS.\*

The latter part of July we were in Paris. How one's preconceived impressions of persons and places collapse in the presence of the real. I was prejudiced against Paris, for what reason I do not know, and yet I enjoyed it the best of any city visited.

Paris is beautiful. Its parks and boulevards and its famous galleries and buildings, rich not only in works of art but in historical associations, appealed to me very much. It is essentially a Latin city and I was frequently reminded of Havana and other cities of Latin America.

The one "fly in the ointment" was the public flaunting of vice, not only by the women of the street plying their trade but by men as well. In no other European city was this noticeable.

Some of the principal streets were lined with petty gambling devices and frivolous amusements with all the gilt and tawdry glamour of a circus. I wondered as I noted the inferior size, dandified dress and effeminate appearance of the men on the streets of Paris if they were physically able to uphold the glorious record of Frenchmen of other days.

Another striking impression was the absence of games that called for physical exercise, no baseball, cricket or tennis, nothing but horse racing. Still Paris is not France and it is to those who labor and live upon the soil that all nations must depend for a physically vigorous people.

From Paris we passed over the beautiful rolling fields of northeastern France. The peasants were cutting fields of fine alfalfa and grass for hay. Patches of rye and wheat were beginning to grow golden for the harvest. It is difficult to imagine this beautiful farming region now devastated by war. The pleasant homes are blackened ruins; the wheat, rye and oats have furnished food for cavalry and artillery horses or tramped into the ground that has been saturated with human blood.

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\* Written for American Journal of Clinical Medicine and by courtesy of that excellent periodical on human medicine, a copy was sent to the REVIEW for publication.



From France we passed to the "lowlands" of Belgium and Holland. I was reminded of the familiar words of Caesar when he says: "All Gaul is divided into three parts, one of which is inhabited by the Belgians," and after reading of the heroic defense of Liege one also recalls his other statement that "of all the inhabitants of Gaul the Belgians are the bravest."

We had noticed many soldiers in Paris but supposed it was a normal condition. When we reached Belgium the movement of troops was pronounced. Even at the Hague, while visiting the Peace Palace, batteries of artillery went rumbling by.

In Rotterdam the streets were filled with sturdy Dutch. The young, excited, the older anxiously watching the bulletins. The reserves were flocking to the colors, among them were fair-haired, rosy-cheeked boys, no taller than the rifles they toted. Officers were commandeering horses and the farmers' wagons were left useless in the streets.

Returning from a visit to the National Serum Institute we found our hotel had been taken for military headquarters. It was interesting to note the effect of war conditions upon the various tourists. Some thought it a joke, others wanted to appear as heroes and assert their "rights as American citizens," while the philosophical made the best of the inconveniences of war.

We sailed from the Hook of Holland and as we steamed into the harbor of Harwich, England, a fleet of scores of destroyers with steam up were tugging at their anchor chains like dogs in the leash, eager for the chase. The scene impressed one with Great Britain's naval power and its readiness for action.

All London, and probably all Britain, were laboring under a great strain. No one seemed to doubt that she would not keep her pledge but one could almost hear a national sigh of relief when the die was officially cast.

There was little excitement in London. Crowds gathered in front of the War and Admiralty buildings on the Strand and in Trafalgar Square, but I do not recall hearing a band play. The only music was the call of the bugles, the only cheering when the king or some cabinet minister passed in the street. There seemed a grim, determined, bulldog spirit in the air. Regiments of strong vigorous young men in khaki and Scottish regiments in kilts, went marching away to an unknown battle ground. There was a "do or die" spirit that was mighty impressive. From Australia, Canada, India and the "Islands of the Sea" came a loyal response to the Empire's battle cry.

Great Britain was preparing very methodically for a long and terrible contest but there was no shrinking. I heard many expressions from Britons that there was no bitterness against the German people—only against the “war lord” and the military despotism that had threatened the peace of Europe so long, and imposed such heavy burdens of armament. There seemed to be the feeling that when the great conflict was over that it would make for peace. My one great and lasting impression of England is of a people who realize to the fullest what a terrible struggle confronted them, and they were making the sacrifice with a grim determination after having counted the cost. They were in no doubt as to the final result.

At the hotel in London I met my friend, Prof. S., a young German college professor, who had been in the United States a year. He had come to London to attend the International Veterinary Congress only to find a call to join the German colors. He said with tears in his eyes: “I don’t want to fight,” but in an hour he was on his way to the war.

We returned to Halifax, N. S., second class on a freight steamship, stopping two days at St. Johns, Newfoundland. Here the naval reserves with sea-tanned, weather-beaten faces and hands horny from handling ropes, were flocking to their ships. They marched down the hilly streets to the wharf with the “rolling gait” of those used to the sea.

At Halifax the “colonial troops” were leaving for “over seas.” Long-limbed, clean-cut fellows were saying “good-bye.” Soldier husbands hugged their little ones in their arms as they marched to the station, while dry-eyed, anxious wives walked beside them, or sweethearts with tears and smiles bade their lovers “God speed.”

All the little villages in the French Canadian provinces were sending companies of young men to war with cheers and music. Here the band was playing martial music; here the cheering crowd, the torches and excitement, but as the train rolled away into the night there were many aching hearts left behind.

In lower Canada there was scarcely any excitement, only train loads of khaki-clad, business-looking young Canadians, all responding with set, determined faces to the call of duty, to give their lives if need be, for “Our King and Empire.” We could not resist the call of race and we gave them three hearty American cheers of “good luck and God speed” as their train rolled away toward the sunrise.

N. S. MAYO.

## TREATMENT OF HOG CHOLERA.

COLLINSVILLE, Ill., September 16, 1914.

*Editor AMERICAN VETERINARY REVIEW, New York:*

I believe that the reporting of bad results in the veterinary profession would be more instructive and prevent more trouble to the rest of the profession, than only to report flowers and sunshine. If you deem the following article of interest enough to publish in your periodical, you have my permission.

A NEW AND SUCCESSFUL DISCOVERY ON THE TREATMENT OF HOG CHOLERA—Eight years ago, while still in the employ of the Bureau of Animal Industry, cholera then prevailing, I had calls to protect herds. I recall three farmers who came to me and asked to have their herds protected. I went there and used the nice operation of serumizing. The largest herd contained 56 head, all apparently well and eating; the same condition in the other two herds. Used a serum from a supposed-to-be reliable firm. Nevertheless, within ten days all three had been here, the one with the 56 came late in the night, woke me and in low words said: "Doc, do you know that every one of them hogs is sick."

The first thing the next morning I made a visit and found things in a deplorable condition; I was about as sick as the hogs (but not fatal). I then prepared the formula recommended in the annual report of the B. A. I., made several visits, corresponded with some very eminent men in the profession, and at the end of two months the owner of the large herd informed me that four pulled through and they wasn't worth a lead dollar.

Then I started to treat with the sulphocarbolates (Abbott's), a little expensive.

One place with 11 nice fat hogs of about 225 pounds, average, all sick and moping around, not eating, high temperature, etc. I bled the sickest one (nearly dead), and made a bacterine of his blood (viz.: kept it at a temperature of 137 degrees F. for 3 hours, strained through muslin and added a small amount of creosote), revisited and injected into the ham 15 c.c. In 36 hours every one was up and eating, by all appearances well. Ten days later a relapse set in and the hired hand informed me later that the owner wouldn't spend any more. The results were that all but one or two died. I believe a bacterin will raise the opsonic index quicker than a serum.

Next I stumbled on a tablet used extensively by the medical profession to disinfect chambers, urinals and the like, used by typhoid patients. These prove to be systemic as well as intes-

tinal antiseptics. Make a nice solution in skimmed milk. As long as a hog will eat these have proven very successful, and those that won't eat I don't think are worth while to tamper with; let them alone, perhaps in a day or two they will commence to drink fresh water, later, the milk with these tablets.

To prevent answering inquiries, these tablets (Sulpholets) are put up by a Green Gross Laboratory, St. Louis, Mo., P. O. Bridge Station. One tablet is an average dose for a 50 to 75-pound hog, twice daily. 200 tablets in a box for \$1.

They are now furnishing full information for the administration in hog cholera on one of their labels.

Internal medication of this nature we are positive is never anaphylactic. I think the sero-simultaneous method is very dangerous to send out, as many practitioners are too busy to properly destroy the virus, throw it on the manure pile, which some farmer hauls out and we can imagine the results. Why do the serum firms give the virus away free?

DR. L. B. MICHAEL.

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### CONTROL OF GLANDERS.

*Editor AMERICAN VETERINARY REVIEW, New York, N. Y.:*

A little article in Vol. 45, No. 5 (August, 1914), page 581, is of considerable interest to me, and although I agree in part with Daniel D. Lee, who has written concerning the control of glanders, from Boston, under date of June 19, 1914, I believe it is possible to reach the end, at least in part, by other means.

I note in this article the statement that quotes, "the percentage of glanders is so great in large cities that a slaughter of those reacting without apparent symptoms would be too great a financial strain on the owner or even the state, if full value were paid." Probably Kansas City, Mo., with something over 250,000, is not considered a large city, but will say that beginning about 1903, for a period of four or five years, we had considerable difficulty with glanders in this city; finally we were successful in having the open drinking fountains closed and during the last two years the number of cases of glanders have been materially diminished, in fact, from January 1, 1914, to the present date, three cases of glanders have been reported from this city.

I attribute all of this to sanitation, closing of drinking fountains, cleaning and disinfecting premises where glandered animals

are found. Thinking that it is of value to give other views on such matters I am writing this to you.

Yours truly

A. T. KINSLEY.

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### NEW ORLEANS MEETING OF THE A. V. M. A.

*To the Editor, AMERICAN VETERINARY REVIEW:*

The response to the letters sent out the first of September indicates that there will be a large attendance at the next meeting of the American Veterinary Medical Association in New Orleans the last four days of December next.

Those in charge of the program report an excellent array of talent prepared to give everyone a post-graduate course in practical veterinary subjects.

There are many subjects to be considered that affect the actual progress of the association of the greatest importance; subjects that every member of the association is interested in, and that demand the judgment of every member of the association. The writer has not the proper command of English to do justice to the city of New Orleans. Some of the native or adopted sons of that quaint, attractive old city will have to do that. I will say, however, that New Orleans is the only city we ever stopped in just to see and know the city. The more we saw of the city the better we liked it. It is probably the most foreign, and to many the most interesting city in the United States—the strange blendings of French and Spanish and the tropics. But I said I would leave this to others. One thing I must say, that if you want some good things to eat, go to New Orleans.

Everybody is going. So make your plans to be there.

N. S. MAYO,  
Ravenswood, Chicago, Ill.

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AMES STRENGTHENS ITS VETERINARY FACULTY.—The veterinary school of the Iowa State College, at Ames, has strengthened its faculty by placing a graduate veterinarian as assistant in the Pathology, Anatomy and Surgery Departments. Drs. C. C. Officer, J. S. Grossman and W. F. Guard occupy the positions in the order named.



## ARMY VETERINARY DEPARTMENT.

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### EXTENSION OF ARMY MEAT INSPECTION.

The following note of the *Army and Navy Journal* of August 4th constitutes a compliment to the intelligent and faithful work performed by the veterinary inspectors of the Quartermaster Corps, U. S. Army. The extension of the meat inspection service to the Commissariat of the Panama Canal Zone, by petition from that source, proves that this service is becoming more generally known and appreciated throughout the army.

It is to be regretted that this note is not just enough to mention the fact that "veterinarians" perform this service, because even to-day the great majority of officers generally believe that "commissary officers" are in charge of this work.

The passage of the Army Veterinary Bill would speedily set matters aright as to correct facts, and induce army sentiment to change in favor of the work performed by veterinarians.

The note is as follows:

#### INSPECTION OF MEAT.

The secretary of war has granted authority for the meat inspectors of the quartermaster corps of the Army employed in Chicago and Kansas City to perform the duty of inspection of meat for the Panama Railroad Company at the request of the general purchasing officer of the Panama Canal. No charge other than the necessary transportation expenses will be made against the Panama Canal on account of this service. It is necessary for the Panama Canal authorities to furnish the Army quartermasters and the inspectors with copies of contracts and specifications, notices of dates of shipment and delivery, so that the inspection may be facilitated. A rigorous inspection has been carried on since the reorganization of the Army in 1901 by the same men in these two packing centers in the case of all meats and meat products which are bought as subsistence stores. The new order of the secretary of war, ordering a similar inspection for such stores for the Panama Canal Zone, cannot but be considered as a compliment to the men in Chicago and Kan-



sas City, who have done the work for the purpose of safeguarding subsistence stores since 1901.

#### THE EUROPEAN WAR AND THE HORSE.

The number of men engaged in the great European War has been variously estimated by military writers as being between fifteen and seventeen millions. So far no estimate has been made of the number of horses of the contesting armies.

According to the lists of the Peace Establishments of the armies of Great Britain, France, Belgium, Russia and Servia on one side, and of Germany and Austro-Hungary on the other side, a total of 693,671 horses are required by these seven armies to mount their cavalry, field artillery, pioneers, trains and miscellaneous corps. While no reliable estimate could be found of the number of additional horses required for the mobilization of these armies, it is hinted at in several foreign reports that in order to mobilize these armies properly, the peace strength of horses will have to be doubled, and in some instances trebled. Roughly estimated, therefore, 1,360,000 horses are likely to be engaged on the battle fields of the European War.

This tremendous number of horses, needed for the purpose of war only, forms an economic question of the first magnitude for the various warring governments. The destruction of horses in war is great, and their number has to be replenished or else war cannot be kept up successfully, because one link of the chain in an army organization has been broken.

The causes of the great loss of horses in war are many, and they are not as well understood and appreciated by military men generally as they ought to be. Horses in war offer, first of all, a better target than do men, both on account of their larger size and the difficulty of hiding them behind shelter. The effect of the bullet of the infantry gun is mild, but that of the shrapnel is deadly on horses, and mere splinters often produce great, tearing wounds. The treatment of these lacerated wounds is difficult with the means on hand in the field, and generally leading to insufficient recovery of the animal for further service. The diseases of war, too, notably glanders, are bound to develop sooner or later, certainly as soon as the horses become worn out from forced marches and ruthless charges; when flesh and animal spirit is lost from exposure to chilly rains, snow or frost in the open camp, or when, as is often the case, forage is scarce or absent.

War is as cruel for horses as it is for men. The result of this cruel hardship upon the horses is feared by all intelligent army commanders, who have learned that an army is made up of both men and horses. Whatever the faults of Emperor William, he is at least a true observer when he recently exclaimed: "We shall keep our borders free from our enemies as long as there is left a man *and a horse*."

When the true history of this war shall be written by military experts, the valuable and indispensable work of army horses will not be forgotten. Likewise the suffering and death of horses on the battlefield, the wounds inflicted upon them, the diseases which decimated their number, and the difficulty of disposing of their corpses on the field, will all be described and explained by the veterinary officers of the great European armies. A fund of new knowledge will thus come to us, interesting, perhaps fascinating, and none the less of great practical value for the army veterinarian and the lover of the army horse in general.

OLAF SCHWARZKOPF.

CONVENTION BULLETIN, UNITED STATES LIVE STOCK SANITARY ASSOCIATION, CHICAGO, 1914—The Executive Committee of this Association have decided to call our Eighteenth Annual Meeting at Chicago, Tuesday, Wednesday and Thursday, December 1, 2 and 3, 1914.

Preliminary work on convention program is now well under way. Members are invited to forward to me as soon as possible suggestions for titles with authors designated for papers and addresses.

We are most anxious in view of present disturbed conditions over the country to make this meeting unusually attractive. Your co-operation to this end is earnestly requested.

JOHN J. FERGUSON,  
Secretary-Treasurer, Chicago.

ENROLLMENT AT THE IOWA STATE COLLEGE, DIVISION OF VETERINARY MEDICINE has shown an increase of about 30 per cent. over that of previous years in the Freshman class, and about 20 per cent. of the new men have additional college credits, and a considerable number are already in possession of a college degree. Surely this is gratifying and we hope is more or less general throughout the veterinary schools of the country.

## BIBLIOGRAPHY.

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### TEXT BOOK OF MILK HYGIENE.

TEXT BOOK OF MILK HYGIENE, by Dr. William Ernst, Official Veterinarian and Director of the Royal Milk Control Station at Munich: Authorized Translation with Annotations and Revisions by John R. Mohler, A.M., V.M.D., Chief of Pathological Division, United States Bureau of Animal Industry and Adolph Eichhorn, D.V.S., Senior Bacteriologist, Pathological Division, United States Bureau of Animal Industry. 281 pages, with 29 illustrations and 5 colored plates. Chicago, Alexander Eger, 1914.

The importance of this subject is too apparent to require any emphasis to be laid upon it, as all veterinarians, physicians and chemists are fully appreciative of the dangers to which milk is exposed once it is drawn from the udder of the cow, and veterinarians are deeply sensible of the conditions which have direful influence upon the milk while still in the animal body. So that after all the veterinarian is the essential logical director of a healthy and clean milk supply; first, by his knowledge of disease in the animals that produce this important food, and second, by his knowledge of the changes to which milk from a healthy cow are exposed, that will make it unfit or dangerous as food for the human family—a food upon which infants largely subsist. And with this knowledge, and the responsibility which it imposes upon him, the veterinarian is ever in search of facts that will further enlighten him on the subject of *Milk Hygiene*. Much earnest thought has been given to this subject by men in the first ranks of our profession and of the medical profession, and by men whose bent has carried their thoughts along the lines of analytical chemistry. Of necessity each must lay more stress upon the branch of science with which he is most familiar, and his work is of especial interest to men following that branch of science as a profession. Just now we have before us a work written by a veterinarian, who holds a position of no less importance than that of Official Veterinarian and Director of the Royal Milk Control Station at Munich, in the person of Dr. William Ernst, whose work treats with greatest prominence the subject from the veterinarian's standpoint, although covering every other phase. Another valuable feature of the work to the American veterinarian is the fact that it has been translated into the English by such prominent representatives of our profession in this country as Drs. John R. Mohler and Adolph Eichhorn; who, fully appreciating the fact that to be of the fullest value to American veter-

inarians it must meet the conditions prevailing in this country, have included in it valuable data from the various milk commissions and other sources, and have replaced the chapter in the German edition which deals with the laws and regulations in that country by one which deals solely with the conditions and standards existing in America. The work is divided into eleven chapters, which treat the following subjects in the order named: *Anatomy, Pathology and Histology of the Mammary Gland; Physiology of Lactation and Characteristics of Milk in General; Microscopy of Milk in General; Composition of Milk and Its Biological, Chemical and Physiological Characteristics; Procurement of Cow's Milk; Internal Influences on the Character of Milk; External Influences which Act Upon Milk; Bacteria in Market Milk—Their Origin and Action; Milk Control; Milk Inspection; Fundamental Principles of Legislative Milk Control.* Many of these chapters have several subdivisions covering important phases of the general subject, and all are profusely illustrated, thereby not only adding materially to the interest of the book, but rendering it so much more readily comprehensive, the subjects under discussion. It is impossible in a review of this kind to do more than suggest the excellence of this work, which must of necessity be of a very high grade when we consider the men that have given of their time and their talent to translate it into the English. After a perusal of *Ernst, Mohler and Eichhorn's Text Book of Milk Hygiene* it is our belief that no matter what work on milk you may have in your library, you *must have this one*. Bound in olive green cloth with leather back and corners (the typical Eger binding), printed on the finest quality of paper with excellent type, it presents a high-class appearance, becoming to a scientific work.

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## ANIMAL PARASITES AND PARASITIC DISEASES.

**ANIMAL PARASITES AND PARASITIC DISEASES.** Third edition, revised; by B. F. Kaupp, M.S., D.V.S., author of *Diseases of Poultry*. Formerly Professor of Pathology and Parasitology, Division of Veterinary Medicine, Colorado Agricultural College. Formerly Pathologist Colorado Experiment Station. Formerly Professor of Parasitology Kansas City Veterinary College. Formerly Veterinary Inspector U. S. Bureau of Animal Industry, Department of Agriculture. Member of the American Veterinary Medical Association and of the United States Livestock Sanitary Association. Commissioner of Public Health, Spartanburg, S. C., etc., etc., etc. 238 pages, with 81 illustrations. Chicago, Alexander Eger, 1914.

It was our privilege to review in our March, 1913, issue, the second edition of this valuable work of Prof. Kaupp. That edi-

tion has become exhausted and we now have before us the third edition. In our review of the last work we made reference to the fact that a work of that kind would be especially welcome because it deals with a phase of practice, with the details of which, the average practitioner becomes somewhat rusty, especially in terminology, differentiation and specific treatment after a few years in routine practice, and for that reason would find the work very convenient to refer to. That prediction has evidently been borne out, as the author in that short time has been called upon for a third edition. This he has produced in most excellent form, maintaining all the excellent qualities of the former edition, as to conciseness and convenient divisions of the work for ready reference, and excellence of illustrations, while adding materially to each. The work is divided into four chapters, treating on External Parasites, Internal Parasites, Protozoa, and Preparation of Specimens. The illustrations which we referred to in our review of the former work, as being so useful as well as of such extreme interest to practitioners, have been increased in number in the present edition, and four pages of photomicrographs of the *Strongylus-Armatus* group have been added and the chapter rewritten, bringing the work right up to the last word on the subject. An addenda has also been added on the present status of knowledge of the chemistry of animal parasites. The photomicrographs, both additional and those of the former edition, were made by the author with an ordinary kodak placed over the ocular lens of the microscope and given time exposure, which adds to their value in the work, as they are all the more part of the author and entirely familiar to him. *Kaupp's Animal Parasites and Parasitic Diseases* is invaluable to the veterinarian, no matter what branch of his profession he may specialize in, as it deals with those parasites responsible for the skin diseases of fowl and all animals, large and small, as well as the internal conditions of parasitic origin, and no practitioner can afford to be without this valuable little work within reach of his hand. The publisher has executed his work in his usual excellent manner, printed the book on smooth paper in clear, sharp type, and bound it in olive green cloth with leather back and corners, making a handsome little addition to the office or library.

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### CASTRATION.

CASTRATION—INCLUDING CRYPTORCHIDS AND CAPONING—AND OVARIOTOMY, by Frederick T. G. Hobday, F.R.C.V.S., F.R.S.E.; Honorary Veterinary Surgeon to His Majesty the King; Examiner in Surgery and Obstetrics



to the Royal College of Veterinary Surgeons; Fellow of the Royal Society of Medicine; Honorary Member of the American Veterinary Medical Association; Membre Correspondant de la Société de Médecine Vétérinaire du Brabant; and Formerly Professor in the Royal Veterinary College, London. 160 pages, with 80 illustrations. Edinburgh and London. W. and A. K. Johnston, Limited, 1914.

This little volume, dedicated to Professor Cadiot, reached our desk as we were concluding our work on the present issue, and is a splendid contribution to veterinary surgery. It is divided into ten chapters under the following headings: *Castration, Scrotal Hernia, The Castration of Cryptorchid Horses, Cryptorchidism in Other Animals, The Castrating of Domesticated Fowls, The Castrating of Ostriches, Ovariectomy and Hysterectomy of Troublesome Mares, Ovariectomy of Cattle, Ovariectomy and Ovario-Hysterectomy of the Smaller Animals, Abnormalities of the Sexual Glands of Man and Horses*. The author covers all of the subjects thoroughly, but not at tiresome length, and each subject is excellently illustrated. Methods of casting for different operative procedures are well illustrated and described. In the chapter on castration of cryptorchid horses, the author fully describes and illustrates the abnormalities that the practitioner is apt to encounter, and also makes instructive reference to untoward sequelae. Cryptorchidism in the bull, ram, pig, dog and cat is also discussed. The chapter on ovariectomy of troublesome mares is very interesting; sixteen cases are cited by way of illustration. Altogether, *Hobday's Castration and Ovariectomy* is an excellent little work for both student and practitioner, being the product of a veterinarian of extensive experience, both as a practitioner and a teacher. The publishers have executed their part of the work well, and the book is neat and convenient in size, so that it can readily be slipped in the side pocket for reading on the road. All veterinarians and veterinary students should have it.

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COLLECTED PAPERS FROM THE RESEARCH LABORATORY OF PARKE, DAVIS & CO., DETROIT, MICH., VOLUME 2.

This volume of 310 pages contains *Studies On Hog Cholera*, by Walter E. King and Robert H. Wilson; *Studies On the Virus of Hog Cholera*, by Walter E. King and F. W. Baeslack; *The Physiological Activity of Cannabis Sativa*, by H. C. Hamilton, A. W. Lescohier and R. A. Perkins; *The Iodine Content of the*



*Small, Medium and Large Thyroid Glands of Sheep, Beef and Hogs*, by T. B. Aldrich, Ph.D.; *Studies On the Virus of Hog Cholera*, by Walter E. King and Robt. H. Wilson; *On the Cultivation of the Treponema Pallidum (Spirochaeta Pallida)*, by F. W. Baeslack; *Studies on the Genococcus*, by Carl C. Warden; *Studies on the Virus of Hog Cholera*, by Walter E. King, F. W. Baeslack and George L. Hoffmann; *Bacillus Bronchisepticus—Its Relation to Canine Distemper*, by N. S. Ferry, M.D.; *Drug Influence on Extrasystoles of the Mammalian Heart*, by Carey P. McCord, M.D.; *The Employment of Protective Enzymes of the Blood as a Means of Extracorporeal Diagnosis*, by Carey Pratt McCord, M.D.; *On Feeding Young White Rats the Posterior and the Anterior Parts of the Pituitary Gland*, by T. B. Aldrich; *The Rational Use of Adrenalin in the Treatment of Asthma*, by Carey P. McCord, M.D.; *Standardization of Disinfectants—Some Suggested Modifications*, by H. C. Hamilton and T. Ohno; *Preventive Measures Against Equine Influenza Based on Its Bacteriology*, by N. S. Ferry, M.D.; *Correcting Water—Methods of Treating Hard and Alkaline Waters—How to Remove Objectionable Ingredients, etc.*, by H. C. Hamilton; *Duration of Immunity Following Smallpox Vaccination*, by A. W. Lescohier, M.D.; *On Crystalline Kombe-Strophanthin*, by D. H. Brauns, Ph.D., and O. E. Closson, Ph.B.; *A Comparative Study of Antigens for the Wassermann Reaction*, by H. R. Varney, M.D. and F. W. Baeslack, M.D.; *The Treatment of Tetanus*, by Charles T. McClintock and Willard H. Hutchins; *Spirochaeta Suis, Its Significance as a Pathogenic Organism—Studies on Hog Cholera*, by Walter E. King and George L. Hoffmann. Numerous illustrations and a colored plate of a hog laid open showing the abdominal viscera twenty-two days after inoculation, with suspension of culture from cecum.

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### SICK HORSES—HOW TO PREVENT—HOW TO TELL AND WHAT TO DO.

The above title designates a little brochure compiled and edited by Chief Veterinarian Mangan of the Department of Street Cleaning of the City of New York, and issued by direction of Commissioner Fetherston. This little pamphlet of fifteen pages, after addressing a chapter to the employees, as to their responsi-

bilities in connection with the horses of the department, deals briefly, in a clear and direct manner with *Colic, Its Causes, How to prevent, How to tell it when it occurs, and What to do. Azoturia* is dealt with in the same manner, and likewise *Sunstroke, Heat-stroke or Heat-exhaustion*. A fifth chapter deals with *Injuries, Lameness and Other Ailments*, the idea being to inculcate into the employees a spirit of responsibility and a knowledge of the care of the horses that will tend to prevent, as far as possible, the occurrence of acute ailments of the horses, and enlighten them on the principles of *First Aid Treatment*. All employees are supplied with copies of the little book and required to study it, their immediate superiors being held responsible for their acquirement of the knowledge of its contents. This is the first thing of the kind, so far as we are informed, and if it proves successful in accomplishing its object, *i. e.*, lessening preventable disease among the horses of the department, no doubt a second edition will be issued, with some additional features. We congratulate Commissioner Fetherston in having so progressive a veterinarian directing the veterinary service of his department, which must reflect credit upon our profession.

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#### EIGHTEENTH ANNUAL REPORT OF THE PENNSYLVANIA DEPARTMENT OF AGRICULTURE.

We recently received the 18th annual report of the Pennsylvania Department of Agriculture for 1912, published at Harrisburg by the State Printer, 1914. This official document of 558 pages covers every phase of agriculture, crops and domestic animals, and represents a tremendous amount of work in its compilation. The report of the State Veterinarian occupies 48 pages and is very interesting; covering *Meat Hygiene*, by Deputy State Veterinarian T. E. Munce; *Horse Breeding*, by Veterinary Director Carl W. Gay; *Transmissible Diseases*, by Veterinary Director R. M. Staley; *Laboratory and Research Work*, by Veterinary Director K. F. Meyer; *Milk Hygiene and Tuberculin Testing*, by Veterinary Director W. S. Gimper. This is followed by the report of the dairy and food bureau, which is also of interest to veterinarians, as is also an illustrated chapter on poultry and modern methods of finishing and dressing. In fact the whole volume is filled with valuable information.

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## OBITUARY.

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### DANIEL ELMER SALMON, B.V.Sc., D.V.M.

Dr. Daniel Elmer Salmon, former Chief of the Bureau of Animal Industry of the United States Department of Agriculture, was born at Mount Olive, Morris County, New Jersey, July 23, 1850, and died of pneumonia at Butte, Montana, August 30, 1914. His early life was passed partly on a farm and partly as a clerk in a country store. He was educated at the Mount Olive district school, Chester Institute, Eastman Business College, and Cornell University. He entered Cornell University at its opening in 1868, being a member of its first freshman class. Here he became acquainted with Prof. James Law, who had just come to America to fill the chair of veterinary science in this new and progressive institution, and after consulting with him decided to take the scientific course for the first year and after that gradually take up veterinary studies, with a view of graduating from that department at the end of four years. This plan was substantially carried out, but as the clinical facilities at Ithaca at that time were not as extensive as were desirable, he was allowed to attend the Alfort Veterinary School, Paris, during the last six months of his course without prejudice to his standing at Cornell University. He was graduated at Cornell in 1872 with the degree of Bachelor of Veterinary Science. The same year he began veterinary practice in Newark, New Jersey. In 1875, on account of impaired health, he went to Asheville, North Carolina, for the benefit of the southern mountain climate. In 1876 he received from Cornell the advanced degree of Doctor of Veterinary Medicine. In 1877 he delivered a course of lectures on veterinary science in the University of Georgia.

The appropriation for use of the Department of Agriculture of \$10,000 in 1878 for the investigation of animal diseases led to his appointment for a period of two months to study the diseases of swine. He was appointed an inspector of the State of New York in 1879 to serve on the staff of Professor Law in an effort to stamp out the contagious pleuro-pneumonia of cattle. Here he had an opportunity by daily observation to acquire a

thorough knowledge of the disease and of the methods of controlling it. This work was arrested in the autumn by the exhaustion of the appropriation, and he accepted an appointment from Commissioner Le Duc of the United States Department of Agriculture to investigate animal diseases in the Southern States, with particular reference to Texas cattle fever. These investigations were the starting point of the scientific work conducted by Dr. Salmon, or under his direction, concerning fowl cholera, the contagious diseases of swine, Texas fever, and the nodular disease of sheep, which have cleared up the principal points as to the cause, nature and control of these diseases.

Early in 1883 he was called to Washington by Commissioner Loring to establish a veterinary division in the Department of Agriculture. Within a year Congress passed an act establishing the Bureau of Animal Industry, and Dr. Salmon was appointed Chief of this Bureau, a position which he held uninterruptedly until December 1, 1905. The most important things accomplished by the Bureau during his administration were: 1. The complete eradication of the contagious pleuro-pneumonia of cattle from the United States. 2. The study and control of Texas fever. 3. The establishment of the Federal meat-inspection service. 4. The establishment of the inspection of exported animals, and the ships carrying them, thus doing away with the cruel treatment and suffering which had been a startling feature of this traffic, reducing the losses and preserving the trade. 5. The preservation of the country from imported diseases by perfecting the system of inspecting and quarantining imported animals. 6. The scientific investigation of animal diseases and their bearing upon public health questions.

In the summer of 1906 he accepted a position under the Government of Uruguay as head of the Veterinary Department of the University of Montevideo. He organized that department and remained at its head for five years. He then returned to the United States and was engaged in special veterinary work in the West. For the past year he was in charge of a plant for the production of anti-hog-cholera serum at Butte, Montana, where he died.

Dr. Salmon was an honorary Associate of the Royal College of Veterinary Surgeons of Great Britain; Fellow of the American Association for the Advancement of Science; chairman of the committee on animal diseases and animal food of the American Health Association; ex-president and member of the executive Public Health Association; ex-president and member of the

executive committee of the American Veterinary Medical Association; member of the Washington Academy of Sciences, and of various other bodies devoted to medical and general science. His writings on these subjects are well known and have been published in many languages.

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TRIBUTE OF W. HORACE HOSKINS ON THE DEATH  
OF DR. D. E. SALMON, AT WASHINGTON,  
SEPTEMBER 8, 1914.

It was my precious privilege to have known for more than thirty years this good man—whose body lies before us—and it will remain a priceless memory for my remaining years to recall how full his life work was of splendid services.

Most of his years were spent in official life and he served his country for more than a score of years with the highest fidelity and devotion and added riches beyond computation to the material prosperity of those engaged in agriculture and its allied field of Animal Industry, while at the same time he laid every man, woman and child of our land under a debt for his conservation of their health through a guarded animal food supply.

In the solution of many of the problems of animal diseases, their control and eradication, he did a public service of great magnitude and worth and accepted every added duty as an increased responsibility that he discharged with the most earnest fidelity.

He likewise drank of the cup of bitterness of a country's ingratitude, through the arbitrary power of one of its chief rulers.

I knew him intimately in the field of association work, where he ever maintained the highest ideals and ever added his voice for higher and better standards in education and association service.

He was a true investigator and ever as a student, which covered his life work, he sought only the truths, and in his writings and teachings his greatest aim was only to impart those truths and facts that patient, sincere investigation revealed.

Kindly of heart, generous in nature, forbearing in spirit to all men, his life was filled with great achievements for his profession, that added to the world's progress and wealth and for which he sought no vain glory.



Future history will properly record this good man's worth and our children's children will lay at his feet their tribute of his life work of investigation and usefulness.

Loved and honored by his profession with the best gifts it could bestow he has left a priceless memory with those whose privilege it was to know him well.

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KLEIN'S TRANSLATION OF FROHNER'S GENERAL THERAPEUTICS NOW IN PRESS—The new fourth revised edition of Frohner's General Therapeutics has been translated into English by Dr. Louis A. Klein, Dean of the School of Veterinary Medicine of the University of Pennsylvania and is now in press. This book discusses therapeutics in a manner entirely different from that in which the subject is presented in other works. Each apparatus of the animal body is taken up in turn, and after a concise but complete survey of the physiology and a review of the pathological changes to which it is liable, the therapeutic methods which may be used to correct these changes are presented. This is followed by a list of the drugs used in the treatment of the diseased conditions, the particular diseases to which each one is suited being stated together with the doses, which are given in the apothecaries, as well as in the metric system. There are also chapters on the treatment of fever, immunity and the use of vaccines and antitoxins, the various methods of using tuberculin and mallein, disinfection, massage, firing, etc. All of the essential facts are presented in concise form and conveniently arranged for reference, making the book suitable for the busy practitioner as well as the student. The fact that the book has gone through four German editions is strong evidence that it is a useful work for veterinarians and veterinary students. J. B. Lippincott Company, publishers, Philadelphia.

IOWA VETERINARY ASSOCIATION.—The next meeting of the Iowa Veterinary Association will be held at Cedar Rapids, December 9th, 10th and 11th. This excellent association of the Hawkeye State always holds something good in store for those who attend it; and when Secretary Stange modestly says, "we anticipate a successful meeting," it means much.



## SOCIETY MEETINGS.

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### NATIONAL ASSOCIATION BUREAU OF ANIMAL INDUSTRY EMPLOYEES.

The second annual convention of the above association was held in Denver, Colorado, August 10, 11 and 12, 1914. After the opening of the convention on the morning of August 10th, at 10 a. m., by National President Gibson, of Albany, N. Y., a resolution was passed for an adjournment from 11.30 a. m. to 3 p. m., out of respect to the deceased wife of the President of the United States, Mrs. Woodrow Wilson; and also that a resolution of sympathy be sent to President Wilson. This message was deeply appreciated by the President and promptly acknowledged. The following resolutions will give some estimate of the work done at this meeting, of which these resolutions are the essence. Many many others were introduced and passed.

#### RESOLUTIONS.

185 Northwestern Ave., Milwaukee, Wis., Sept. 1, 1914.

*To all members, N. A. B. of A. I. E.:*

Greetings.—The resolutions that were adopted at the second annual convention of the N. A. B. of A. I. E. in the Magnolia room of the Albany Hotel, of Denver, Col., August 10 to 12, 1914, are as follows:

*Resolution No. 1.*—Be it resolved, That the second annual convention of the National Association, Bureau of Animal Industry Employees, in session at Denver, Col., this the 10th day of August, 1914, in deep respect and sympathetic condolence with Hon. Woodrow Wilson, President of the United States, on the death of Mrs. Wilson, his beloved wife, do hereby adjourn from 11.30 o'clock a. m. to 3 o'clock p. m., and herewith extend to the President of the United States, our heartfelt sympathy and respect in this his great bereavement.

And, be it further resolved, That this resolution be spread upon the minutes of this convention, and that a copy of the same be forwarded to the Secretary of the President.

*Resolution No. 2.*—"Resolved, That the N. A. B. of A. I. E. declare for a hearty co-operation with the department and bureau

officials for the purpose of conscientiously administering the law and honestly and proficiently performing the duties assigned to them."

*Resolution No. 3.*—Resolved, That the second annual convention of the N. A. B. of A. I. E. indorse the Lobeck-Lewis Bill, H. R. 9292-5720. Resolved further, That the next executive committee be authorized and empowered to endorse any alterations or amendments to the Lobeck-Lewis Bill which may become necessary to secure its enactment into law, providing said alterations and amendments do not conflict with the fundamental principles of said Lobeck-Lewis Bill.

*Resolution No. 4.*—Resolved, That we endorse the McGillicuddy Federal Employees Compensation Bill, H. R. 15222, now pending in Congress. (Memo.—A motion was carried in this connection, that the legislative representative in Washington be instructed to use his best endeavors to secure the passage of the McGillicuddy Bill.)

*Resolution No. 5.*—Resolved, That the N. A. B. of A. I. E. adopt a bold or enamel button to be worn by all members of this association; style to be the same as the shield used for printed matter; members to purchase said button at their own expense.

*Resolution No. 6.*—Whereas, Rev. H. L. Bowlby, secretary of the Lord's Day Alliance, and Wm. E. Russell, of the Federal Civil Service Society, of the State of New York, and Harry R. Meyers, chairman of the Ways and Means Committee of the Federal Civil Service Society of the State of New York, are and have been active in further the interest of all questions affecting our association,

Be it therefore resolved, That this association in convention assembled tender their sincere thanks and appreciation to the above mentioned gentlemen.

Be it further resolved, That a copy of this resolution be spread upon the minutes of the convention, and one copy sent to each of the persons mentioned therein.

*Resolution No. 7.*—Resolved, That this convention endorse the action of the national secretary, Dr. S. J. Walkley, in his approving of section 8, S5720.

*Resolution No. 8.*—Resolved, That this convention re-endorse the Hamill Civil Service Retirement Bill, No. H. R. 5139.

*Resolution No. 9.*—Resolved, That this convention urge all officers and members of the various locals to put forth every effort to obtain endorsements of the Lobeck-Lewis Bill, from

live stock exchanges, commercial clubs and other civic bodies, also senators and members of congress from their own or other localities.

Be it further resolved, That when such endorsements are obtained they be promptly forwarded to the national secretary.

*Resolution No. 10.*—Resolved, That we heartily thank the Denver Branch, No. 7, and Mr. W. S. Pidcock for the splendid reception and entertainment given this convention during our stay in Denver.

Be it further resolved, That we thank the Buffalo Branch, No. 22, for magnanimously paying out of their own treasury the expense of Prof. Veranus a . . . . . of Cornell University, and Chas. W. Pagle, Jr., secretary of Buffalo Branch No. 22, incurred by their appearing before Congress in the interest of the Lobeck-Lewis Bill.

Be it further resolved, That thanks be extended to Milwaukee Branch No. 2, in paying the expense of Prof. M. P. Ravenel, of the University of Wisconsin, incurred by appearing before Congress in the interest of the Lobeck-Lewis Bill.

And be it further resolved, That thanks be extended to the New York Branch No. 19 for paying the expense of President Russell of the Federal Civil Service Retirement Association, to go to Washington in the interests of the Lobeck-Lewis Bill.

*Resolution No. 11.*—Resolved, That we heartily endorse circular letter No. 518, recently issued by Dr. A. D. Melvin, chief of the U. S. Bureau of Animal Industry.

*Resolution No. 12.*—Resolved, That this convention render a vote of thanks to the chief of the U. S. Bureau of Animal Industry in permitting Dr. John R. Mohler to attend this convention.

Resolved further, That a vote of thanks be tendered to Dr. John R. Mohler, assistant chief of the U. S. Bureau of Animal Industry, for his kindly interests in this association.

Election of officers resulted as follows: President, Dr. J. E. Gibson, Albany, N. Y.; first vice-president, F. C. Krehl M.I., Milwaukee, Wis.; second vice-president, David Richardson, M.I., Ft. Worth, Tex.; third vice-president, Stephen Bray, I.A., Kansas City, Kan.; fourth vice-president, F. McCarthy, M.I., Brooklyn, N. Y.; secretary, S. J. Walkley, Milwaukee, Wis.; treasurer, Louis Donham, I. A., East St. Louis, Ill. At the conclusion of the session, the association adjourned to meet in New York City the second Monday in August, 1915.

S. J. WALKLEY, *Secretary.*

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## PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

The semi-annual meeting of the Pennsylvania State Veterinary Medical Association was held September 23d in the rooms of the Clover Club, Allentown.

The meeting was brought to order by President Cox at 11.30 a. m. with 30 members in attendance.

The order of business resulted in the appointment of a committee of three, to be known as the Salmon Memorial Committee, and a Higher Educational Committee of five.

Drs. G. A. Wehr, Denver Lane, Lancaster Co.; Milton D. Harper, Breinigsville; Richard L. Kramlich, Fogelsville; and Jesse Z. Hillegass, Allentown, were elected to membership.

After the meeting was adjourned at 1 p. m., luncheon and refreshments were served to the members in attendance before the start to the Allentown fair was made.

From the way the members drifted after reaching the fair grounds it may be said that the fair proved attractive and interesting to all.

JOHN REICHEL,  
*Corresponding Secretary.*

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## YORK COUNTY VETERINARY MEDICAL ASSOCIATION.

The York County Veterinary Medical Society met in the National Hotel parlors, York, September 8, 1914, with a good attendance, and held a very interesting meeting. The secretary, Dr. E. S. Bausticker, reported a case of Rabies in a dog owned by E. W. Baekel, on Benjamin Stoner's farm, Hellam township, which was confirmed by the State Livestock Sanitary Board of Pennsylvania, after sending the head of the dog to Philadelphia. Dr. Charles Lenhart read a paper on "*Tracheotomy in Animals*," which was enjoyed by all present, also a general discussion on the following diseases and their treatment by all members present: *Glanders, Cerebro-spinal Meningitis, Colic in horses, Bone Spavin, Anthrax and Stringy Milk in Cows and Acute Laminitis in Horses*. Dr. Charles H. Flickinger, of Jefferson, was elected as a member of the society. The society will meet next December.



## NEWS AND ITEMS.

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### "THE MEDITATIONS OF MARTA."\*

(Being the reflections of a bull pup.)

Dear me but this is a terrible world for poor little I. You see, I have been adopted because my mother had so many children that she could not feed them all without the assistance of a cow, and as my mother is very old fashioned, she would not accept such a plan. So she gave me to two old maids to bring up, that are so grouchy they creak when they walk. And you can't even bat an eyelash without them seeing it. I am only seven weeks old, and my stupid old new mothers expect me to act just like a grownup, and to know everything there is to know, even to their ah's and oh's.

You don't know how lonesome I get without my mother who "born" me, and my brothers and sisters; I try to forget my troubles by frolicking around a bit, but my overseers object to that, and before I can wag my tail thrice they have me by the back of the neck, rubbing my nose on the carpet until I think I have none left, and I am sure there are bits of it interwoven in the pattern, and then they show me a newspaper as much as to say, "Employ your time in reading that, so you won't die ignorant."

You see, they are very "littery," or at least think so, and then, if I don't care to improve my *mind*, they spank me on the part that goes last, and put me in what they call a satchel, but I say it's a padded dungeon, for they never seem to hear me cry after the door is shut. And would you believe it, that is where I sleep at night with the door open, but covered over with one of those horrid mind improvers.

Oh, I do wish my adopters would be human and realize that I am just a wee bit of a new thing, and would let me do a lot of investigating with my new teeth, the very first ones I have ever had, so they will grow very strong and sharp, and let me have some of everything they eat, and go to bed with them,

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\* Published by courtesy of Miss Ruth Richmond, the author.



when I please, and get up, when I please, and have all the old shoes, carpets, rugs and furniture that I want to play with, then I would be happy, and not think this old world so terrible.

ANNUAL OUTING OF THE NATIONAL ASSOCIATION BUREAU OF ANIMAL INDUSTRY EMPLOYEES, BRANCH 19.—The second annual outing of the National Association Bureau of Animal Industry Employees, Branch 19, was held at Donnelly's Grove, College Point, L. I., Saturday, September 5th. More than 300 members of the association and their friends, with a proper representation of the packing and slaughtering interests, made this outing a thorough success. The day was ideal and the throng came early with smiling faces and all joined in the games, races and other contests; drinking each other's health, smoking good cigars and were as happy as the day was long. There was a continuity of receptions among friend that were brought together, with laughing and good-natured jollying in abundance, and yet a sturdy interest in the competitive events. All were loath to leave the bracing breezes of the large park until darkness made further outdoor pleasure impossible. Adjournment was then made to the well-lighted and spacious dining room, where a dinner such as only Donnelly knows how to prepare awaited the hungry outingers. While the dinner was under way Mr. William F. Brown, president of the association, in a few well-chosen, preliminary remarks introduced Mr. Harry R. Meyers, chairman, Ways and Means Committee of the Federal Civil Service Society of the State of New York, who acted as toast-master and, after a short address, in which he attested to the excellence of the affair, introduced several officers and members of the Bureau Association and many of the representative visitors. Dr. N. L. Townsend, inspector in charge of New York, was the first called on, and he said he was highly pleased to see affairs of this kind which tended to bring closer together the bureau employees and create a more united and more co-operative body. He refreshed the members' memories by repeating some of the things he said a year ago, shortly after his coming to New York, at which time, at the first annual outing, he asked for the support and unity of all bureau men and said at that time he was a little timid as to how he would be received, but was pleased to say that he had received all the support he had sought. After a few concluding remarks, in which he complimented the committee and extended a hearty welcome to the visiting friends of



the association, he sat down amid cheers and applause that made the building ring and lasted fully five minutes. Many other speakers were introduced and well received. At the dinner the prizes for the contests were awarded. All finally left at a late hour, giving a rousing cheer to Mr. Donnelly for his excellent service and promising to return in increased numbers one year hence.

INDORSEMENT OF CHICAGO LIVE STOCK EXCHANGE—EMBLEMS  
FOR MEMBERS OF N. A. B. A. I.

185 Northwestern Ave.,  
Milwaukee, Wis., Sept. 26, 1914.

To All Members N. A. B. of A. I. E., Greetings:

The following is a copy of the resolution received in this office from the secretary of the Chicago Live Stock Exchange:

"The Chicago Live Stock Exchange,

"Office of the Secretary,

"Union Stock Yards, Chicago, Ill., Sept. 23, 1914.

"To Whom It May Concern:

"Resolved, That the Chicago Live Stock Exchange heartily endorse the provisions of the Lobeck-Lewis Bill, H. R. 9292-S. 5720, calculated to attract and retain efficient and reliable men as employees in the work of livestock and meat food product inspection, and securing just and equitable salary schedule for the employees of the Bureau of Animal Industry.

"Adopted by the Board of Directors of the Chicago Live Stock Exchange, this, the twenty-second day of September, 1914.

"(Seal) Signed W. Baker, Secretary."

An order has been placed with manufacturers for association emblems, and samples of same will be forwarded to all local secretaries within the next three weeks. Several orders have already been received for sterling silver and rolled gold screw back lapel buttons at 60 cents each, gold plated stick pins at 45 cents each and rolled gold hat pins at 60 cents each. The matter of supplying these emblems in the shape of watch fobs has been taken up with the manufacturer. Those who would desire the emblem in that shape will please correspond with me regarding same.

Fraternally yours,

S. J. WALKLEY, Secretary.

DR. A. H. CHENEY, graduate of the University of Pennsylvania Veterinary School, has located at Polson, Montana. Dr. Cheney was formerly at Miles City, that State.

NEW YORK STATE VETERINARY COLLEGE AT NEW YORK UNIVERSITY IN NEW YORK CITY opened on September 21, 1914, with an encouraging increase in its Freshman class.

DR. A. G. BROCKER, Steamboat Springs, Colorado, left Thursday morning for Trinidad, where he had been called to consult with veterinarians in regard to a mysterious disease which has caused the death of many horses in that vicinity.

BRANDED!—When the donkey saw the zebra  
He began to switch his tail;  
“Well, I never,” was his comment;  
“There’s a mule that’s been in jail.”  
—(*The Horse Lover.*)

MARRIED SEPTEMBER 15, 1914.—Dr. David Benjamin Morgan, Neosho, Missouri, was married to Miss Maggie Fay Wright, of that place, on September 15th. The couple will be at home after October 5th. The profession congratulates them through the REVIEW.

NEW RESIDENT SECRETARY FOR NEW MEXICO.—Dr. M. Imes, of Albuquerque, New Mexico, has resigned as resident secretary of the American Veterinary Medical Association for New Mexico, as he expects to leave that State. Dr. F. H. Barr, of Albuquerque, has been appointed to succeed him.

ASSISTANT CHIEF OF THE B. A. I.—On July 1, 1914, Dr. John R. Mohler, formerly chief of the Pathological Division, became assistant chief of the Bureau of Animal Industry. Dr. A. R. Ward, formerly of the Philippines, has succeeded Dr. Mohler as acting chief of the Pathological Division.

DR. I. S. ALFORD, Paxton, Ill., has received word that he is to be appointed as an assistant state veterinarian, as a result of his passing a recent civil service examination. Dr. Alford is devoted to the study and practice of his profession in a way that has well-fitted him for any veterinary position to which he might aspire.

THE highest-priced draft horse of any breed, namely, the famous Clydesdale stallion, Baron o' Buchlyvie, was recently

killed by his owner, William Dunlop, of Ayr, Scotland, on account of an accident which made it necessary to kill him. Mr. Dunlop is reported to have paid \$47,000 for the Baron.—(*The Horse Lover.*)

DR. BLATTENBERG ARRESTED AS A GERMAN SPY.—In a recent letter from the "Most Worthy Patron of the Blue Owls," he informed us that while traveling in the north of Ireland he was arrested and detained as a German spy, so that he almost missed his boat over to Scotland. The mistake was probably due to "Blat's" German appearance.

NEW YORK STATE MAN LOCATED IN COLORADO.—Dr. E. L. Eckerson, formerly of Spring Valley, N. Y., has located at Husted, Colorado, where he has an excellent field and is doing well. The doctor concludes a recent letter, in which he is re-entering our subscription list, by saying, "I am doing fine, but could do much better with your good magazine."

DR. GILLES APPOINTED CHIEF FOOD INSPECTOR.—Dr. DeWitt C. Gilles, recently on the staff of the Bureau of Animal Industry of the U. S. Department of Agriculture, has been appointed Chief Food Inspector of the City of Savannah. Dr. Gilles was appointed as the selection of a board of examiners, examinations being held in Savannah, Washington, D. C., Chicago and Boston.

ADDITIONS TO VETERINARY FACULTY AT NORTH CAROLINA COLLEGE OF AGRICULTURE.—Dr. W. B. Smith (D.V.M.), Auburn, Ala., 1914, has accepted position of instructor in Physiology, Histology and Pathology in the Veterinary Division of the North Carolina A. and M. College. Dr. A. H. Graham, B.S., Clemson, 1911 (D.V.M.), Ohio State, 1914, will teach materia medica and pharmacy at the same institution.

ROCKLAND COUNTY VETERINARY MEDICAL ASSOCIATION.—On August 26th, the members of the veterinary profession of Rockland County, New York, met and formed the Rockland County Veterinary Medical Association, with the following charter members: Dr. Herbert F. Harms, president, Pearl River, N. Y.; Dr. H. W. Boyd, vice-president, Nyack, N. Y.; Dr. Harry Fredericks, Suffern, N. Y.; Dr. Roland King, Stony Point,

N. Y.; Dr. Herbert S. Sackett, Spring Valley, N. Y.; Dr. Frank Breed, secretary. New York State will soon be, if it is not already, the best organized State in the Union in regard to the veterinary profession.

**MASSACHUSETTS FARMERS CAN GROW ALFALFA.**—The Agricultural Experiment Station has just issued a bulletin which all farmers having live stock to feed should read. This bulletin presents the authors' estimate of alfalfa as a crop for Massachusetts' farmers. It gives the results of both home and co-operative experiments to date, describes the methods of soil preparation, fertilization and seeding which seem likely to prove most successful; discusses the principal obstacles to success, and the best methods of meeting them; and gives direction for the general management of the crop. Those desiring the bulletin should apply to the Massachusetts Agricultural Experiment Station, Amherst, Mass.

**OUTLOOK ENCOURAGING.**—Breeder of draft horses have every reason to feel encouragement at the present outlook, for it has been repeatedly proven that the motor truck has its limitations and the public is beginning to realize it.

The country has been flooded with cleverly prepared literature, so worded as to convince the buyer of the superiority of the truck over the horse-drawn vehicle, and during the last two or three years many manufacturers, wholesalers and other concerns, both large and small, have replaced their teams with gasoline trucks. Some of these trucks are still in service, some have gone to the scrap heap, but it is acknowledged in most cases that the power truck is short-lived and a source of trouble and expense all out of proportion to the service rendered. On the other hand, a pair of good draft horses, properly used and cared for, will not only outlast several trucks, but will accomplish the work required of them for a third of the cost.

*The Horse Lover* is in receipt of a photograph from a city in Ohio showing a horse now 28 years old, who for the past 23 years has been in daily use by the local gas company. Can any one imagine a motor truck making such a record?

If the horse breeders and dealers of this country would adopt some of the aggressiveness and publicity methods of the manufacturers of motor trucks, they would soon find themselves so busy filling orders that there would be no time to worry about the competition of power-driven vehicles.—(*The Horse Lover.*)

# VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
Alabama Veterinary Med. Ass'n.....	Mar. 5-6-7, 1914 .....	Auburn.....	C. A. Cary, Auburn.
Alumni Ass'n, N. Y.-A. V. C.....	June 10, 1915.....	141 W. 54th St. ....	P. K. Nichols, Port Richmond, N.Y.
Alumina V. M. Ass'n.....	Dec., 28-31, 1914 .....	New Orleans, La .....	Nelsen S. Mayo, 4753 Ravenswood Ave., Chicago, Ill.
Arkansas Veterinary Ass'n.....	January 5-6, 1915 .....	Little Rock.....	R. M. Gow, Fayetteville.
Ass'n Médéciale Veterinaire Française. "Laval".....	1st and 3d Thur. of each month.....	Lec. Room, Laval Un'y, Mon. ....	J. P. A. Houde, Montreal.
B. A. I. Vet. In. A., Chicago.....	2d Fri. each month.....	Chicago.....	H. A. Smith, Chicago, Ill.
B. A. I. Vet. In. A., So. Omaha.....	3d Mon. each month.....	S. Omaha, Neb.....	E. J. Jackson, So. Omaha.
Buchanan Co. Vet. Ass'n.....	Monthly.....	St. Joseph.....	F. W. Caldwell, St. Joseph, Mo.
California State V. M. Ass'n.....	December 10, 1913.....	San Francisco.....	John F. McKenna, Fresno.
Central Canada V. Ass'n.....	Feb. and July.....	Ottawa.....	A. E. James, Ottawa.
Central N. Y. Vet. Med. Ass'n.....	June and Nov.....	Syracuse.....	W. B. Switzer, Oswego.
Chicago Veterinary Society.....	2d Tues. each month.....	Chicago.....	D. M. Campbell, Chicago.
Colorado State V. M. Ass'n.....	January, 1914.....	Denver.....	I. E. Newsom, Ft. Collins.
Connecticut V. M. Ass'n.....	1st Tues., Feb., 1915.....	Hartford.....	B. K. Dow, Williamantic.
Delaware State Vet. Society.....	Jan., Apl., July, Oct.....	Wilmington.....	A. S. Houchin, Newark, Del.
Essex Co. (N. J.) V. M. A.....	3d Mon. each month.....	Newark, N. J.....	J. F. Carey, East Orange, N. J.
Genesee Valley V. M. Ass'n.....	2d week, July, 1913.....	Rochester.....	J. H. Taylor, Henrietta.
Georgia State V. M. A.....	Dec. 22-23, 1913.....	Atlanta.....	P. F. Bahnsen, Americus.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis P. Cook, Cincinnati.
Illmo Vet. Med. Ass'n.....	July 17, 1914.....	E. St. Louis.....	L. B. Michael, Collinsville, Ill.
Illinois State V. M. Ass'n.....	July 15, 1914.....	Springfield.....	L. A. Merillat, Chicago.
Indiana Veterinary Association.....	Jan. 14, 1914.....	Indianapolis.....	A. F. Nelson, Indianapolis.
Iowa Veterinary Ass'n.....	Dec. 9-10-11, 1914.....	Cedar Rapids.....	C. H. Stange, Ames.
Kansas State V. M. Ass'n.....	Jan. 6-7-8, 1914.....	Manhattan.....	J. H. Burt, Manhattan.
Kentucky V. M. Ass'n.....	Oct. & Feb. each year.....	Lexington.....	Robert Graham, Lexington.
Keystone V. M. Ass'n.....	2d Tues. each month.....	Philadelphia.....	Cheston M. Hoskins.
Lake Erie V. M. Association.....	Pending.....	Pending.....	Phil. H. Fulstow, Norwalk, Ohio.
Louisiana State V. M. Ass'n.....	Sent., 1914.....	Lake Charles.....	Hamlet Moore, New Orleans, La.
Maine Vet. Med. Ass'n.....	October, 1914.....	Lewiston.....	H. B. Wescott, Portland.
Maryland State Vet. Society.....	.....	Baltimore.....	H. H. Counselman, Sec'y.
Massachusetts Vet. Ass'n.....	4th Wed. each month.....	Young's, Boston.....	W. T. Fugh, Southbridge.
Michigan State V. M. Ass'n.....	Feb. 3, 4, 1914.....	Lansing.....	W. A. Ewalt, Mt. Clemens.
Minnesota State V. M. Ass'n.....	July 8-9, 1914.....	Northfield.....	G. Ed. Leech, Winona.
Mississippi State V. M. Ass'n.....	1914.....	Vicksburg.....	J. D. Townsend, Louisville.
Missouri Valley V. Ass'n.....	Jan. 27, 28, 29, 1914.....	Kansas City, Mo.....	Hal. C. Simpson, Denison, Ia.
Mississippi Valley V. M. Ass'n.....	Semi-Annually.....	Galesburg, Ill.....	G. E. McIntyre, Alexis, Ill.
Missouri Vet. Med. Ass'n.....	July, 1915.....	St. Louis.....	Chas. D. Tolse, Kansas City.
Montana State V. M. A.....	Sept. 24, 25, 1913.....	Helena.....	A. D. Knowles, Livingston.
Nat'l Ass'n B. A. I. Employees.....	2d Mon., Aug., 1915.....	New York, N. Y.....	S. J. Walkley, 185 N. W. Ave., Milwaukee, Wis.
Nebraska V. M. Ass'n.....	1st Mo. & Tu., Dec.'13.....	Lincoln, Neb.....	Carl J. Norden, Nebraska City.
New York S. V. M. Soc'y.....	1915.....	Ithaca.....	H. J. Milka, Ithaca, N. Y.
North Carolina V. M. Ass'n.....	June 23, 1914.....	Wilson.....	J. P. Spoon, Burlington.
North Dakota V. M. Ass'n.....	Week of July 20, 1914.....	Fargo.....	A. F. Schalk, Agricultural College.
North-Western Ohio V. M. A.....	Nov. 1913.....	Delphos.....	E. V. Hover, Delphos.
Ohio State V. M. Ass'n.....	Jan. 14, 15, 1914.....	Columbus.....	Reuben Hilty, Toledo.
Ohio Soc. of Comparative Med.....	Annually.....	Upper Sandusky.....	F. F. Sheets, Van Wert, Ohio.
Ohio Valley Vet. Med. Ass'n.....	.....	.....	J. C. Howard, Sullivan.
Oklahoma V. M. Ass'n.....	Fall, 1913.....	Oklahoma City.....	C. E. Steel, Oklahoma City.
Ontario Vet. Ass'n.....	1st Week in Feb. 1914.....	Toronto.....	L. A. Wilson, Toronto.
Pennsylvania State V. M. A.....	March, 1915.....	Harrisburg.....	John Reichel, Glenolden.
Philippine V. M. A.....	Call of President.....	Manila.....	David C. Kretzer, Manila.
Portland Vet. Med. Ass'n.....	4th Tues. each month.....	Portland, Ore.....	Sam. B. Foster, Portland, Ore.
Province of Quebec V. M. A.....	.....	Mon. and Que.....	Gustave Boyer, Rigaud, P. Q.
Rhode Island V. M. Ass'n.....	Jan. and June.....	Providence.....	J. S. Pollard, Providence.
South Carolina Ass'n of Veter'ns.....	Pending.....	.....	B. K. McInnes, Charleston.
South Illinois V. M. and Surg. Ass'n.....	Aug. 4-5-6, 1914.....	Salem.....	F. Hockman, Iola.
St. Louis Soc. of Vet. Inspectors.....	1st Wed. fol. the 2d Sun. each month.....	St. Louis.....	Wm. T. Conway, St. Louis, Mo.
Schuylkill Valley V. M. A.....	Dec. 16, 1914.....	Reading.....	W. G. Huyett, Wernersville.
Soc. Vet. Alumni Univ. Penn.....	.....	Philadelphia.....	B. T. Woodward, Wash'n, D. C.
South Dakota V. M. A.....	Pending.....	Madison.....	S. W. Allen, Watertown.
Southern Aux. of Cal. S. V. M. Ass'n.....	Jan., Apl., July, Oct.....	Los Angeles.....	J. A. Dell, Los Angeles.
South St. Joseph Ass'n of Vet. Insp.....	4th Tues. each month.....	407 Illinois Ave.....	H. R. Collins, South St. Joseph.
Tennessee Vet. Med. Ass'n.....	November, 1914.....	Nashville.....	O. L. McMahon, Columbia.
Texas V. M. Ass'n.....	Nov., 1913.....	College Station.....	Allen J. Foster, Marshall.
Twin City V. M. Ass'n.....	2d Thu. each month.....	St. P.-Minneap.....	M. H. Reynolds, St. Paul, Minn.
Utah Vet. Med. Ass'n.....	Spring of 1914.....	Salt Lake City.....	E. J. Coburn, Brigham City.
Vermont Vet. Med. Ass'n.....	.....	.....	G. T. Stevenson, Burlington.
Veterinary Ass'n of Alberta.....	.....	.....	C. H. H. Sweetapple, For. Saskatchewan, Alta., Can.
Vet. Ass'n Dist. of Columbia.....	3d Wed. each month.....	514 9th St., N.W.....	M. Page Smith, Washington, D. C.
Vet. Med. Ass'n, Geo. Wash. Univ.....	1st Sat. each month.....	Wash'ton, D. C.....	J. M. Caswell, 2115 14th Street.
Vet. Ass'n of Manitoba.....	Feb. & July each yr.....	Winnipeg.....	Wm. Hilton, Winnipeg.
Vet. Med. Ass'n of N. J.....	July 9, 1914.....	Montclair.....	E. L. Loblein, New Brunswick.
V. M. Ass'n, New York City.....	1st Wed. each month.....	141 W. 54th St.....	R. S. McKellar, N. Y. City.
Veterinary Practitioners' Club.....	Monthly.....	Jersey City.....	T. F. O'Deal Union Hill, N. J.
Virginia State V. M. Ass'n.....	July 9-10, 1914.....	Staunton.....	Geo. C. Faville, North Emporia.
Washington State Col. V. M. A.....	1st & 3d Fri. Eve.....	Pullman.....	R. J. Donohue, Pullman.
Washington State V. M. A.....	June, 1915.....	Yakima.....	Carl Conner, Bellingham.
Western N. Y. V. M. A.....	June 24, 1914.....	Buffalo.....	W. E. Frits, 358 Jefferson St., Buffalo.
Western Penn. V. M. Ass'n.....	3d Thu. each month.....	Pittsburgh.....	Benjamin Gunner, Sewickley.
Wisconsin Soc. Vet. Grad.....	Feb. 10, 11, 1914.....	Milwaukee.....	W. W. Arzberger, Watertown.
York Co. (Pa.) V. M. A.....	June, Sept., Dec., Mar.....	York.....	E. S. Bausticker, York, Pa.



## PUBLISHERS' DEPARTMENT.

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Subscription price, \$3 per annum, invariably in advance; Canadian subscriptions, \$3.25; foreign countries, \$3.60; students while attending college, \$2; Students in Canada, \$2.25; single copies, 30 cents in U. S. **Copy for advertisements should be received by 10th of month.**

*Rejected manuscripts will not be returned unless postage is forwarded.*

*Subscribers are earnestly requested to notify the Business Manager immediately upon changing their address. Make all checks or P. O. orders payable to American Veterinary Review.*

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SPAVINS AND RINGBONES. Ugly sounding conditions, but successfully treated with *Mistura Argenti Composita*. Look on page 9 of the present issue for the three capitals M. A. C.

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EVEN THE ADVERTISING PAGES OF THE REVIEW ARE INSTRUCTIVE: Look at P. D's advertisement on the upper half of the outside back cover page of this issue for a tip on *Eserine*. Then write for some specifying *benzoate*, mentioning the AMERICAN VETERINARY REVIEW.

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ATLAS HORSE FEED, GOOD IN ANY SEASON is especially good during the cold weather, when fuel is required for warming the body as well as for giving energy. All veterinarians know the value of molasses in this respect, and *Atlas Horse Feed* has just the proper proportions to get the best results. Consult the MEADER-ATLAS Co's advertisement on page 5 of the present issue, and when you write them, mention the REVIEW.

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SPRATT'S DOG BISCUITS STANDARD: Veterinarians never need hesitate to say Spratt's when asked by a client for a standard dog biscuit. And they can furnish a biscuit suitable for any breed of dogs, as they make a special study of the requirements of the systems in the different breeds. You will always find their advertisement in the REVIEW, it has been there a quarter of a century. On page 24 of this issue.